



300' x 35 Mi.

Corridor to the Past

A joint project of the Florida Department of Transportation and the
Division of Historical Resources,
Florida Department of State, George Firestone, Secretary of State

	300'	×	35	Mi.	
--	------	---	----	-----	--

Corridor to the Past

Phillip M. Pollock

1986



A joint project of the Florida Department of Transportation and the
Division of Historical Resources,
Florida Department of State, George Firestone, Secretary of State

This report was produced with Microsoft Word word processing software and printed in Helvetica Bold on a Hewlett Packard Laserjet Printer. Design and layout by Burke Exhibits of Tallahassee, Florida. Prepared under contract with the Florida Department of Transportation by the Florida Bureau of Archaeological Research in conjunction with the travelling museum exhibit "300'x35MI." For information on the travelling exhibit contact Museum of Florida History (904) 488-1484.

Copies available from the Florida Department of Transportation, Media Center Maps and Publications Sales, 605 Suwannee Street, Tallahassee, FL 32301, (904) 488-9220. Price \$4.00.



This document was promulgated at a cost of \$5,786 or \$5.786 per copy to inform the public of archaeological research in Florida.

Contents

Acknowledgements	3
Summary	5
Introduction	9
Environment of the Paleo Indian Period	17
The Paleo Indian Way of Life	23
Archaic Indian Lifeways	29
Methodology	33
Findings and Results	41
Glossary	53
Bibliography	55



Acknowledgements

Acknowledgements in any written work almost always seem to fall short of giving the recognition due the many individuals responsible for its completion.

Any notable archaeological excavation involves a great deal of work and time spent by many people, including those at the excavation site, the laboratory staff, typists and many others. This is especially true here, since this report is based on work from thirteen excavations. Some of these excavations were more extensive than others, but all helped to tell a story about early man and his environment.

Fortunately, the State of Florida, like many other states, has a cultural resource management agreement. In this case, between the Florida Department of Transportation and the Florida Division of Archives, History and Records Management. This agreement covers archaeological sites of significance, those worthy of scientific investigation. Therefore, when the Florida Department of Transportation developed plans for an Interstate 75 corridor through Hillsborough County, the Division was called upon to investigate the archaeological potential of the area. Surveys of the Interstate corridor eventually resulted in excavation of the thirteen sites; without the assistance of the Florida Department of Transportation and its regional office in Temple Terrace, this work could not have been completed. Archaeologists who directed the excavations and prepared the original reports spent many months in Hillsborough County, working under sometimes difficult conditions. Their work led to a new and better understanding of prehistoric people in this region. The sites were excavated and reported by: Marlon M. Almy, Danny H. Clayton, Marsha A. Chance, I. Randolph Daniel, Jr., James S. Dunbar, Katherine I. Gagel, Kenneth W. Hardin, Jay B. Havisser Jr., Robert E. Johnson, Elizabeth J. Misner, Jill Palmer, J. Michael Wisenbaker and Barry R. Wharton.

Many other individuals were directly responsible for the completion of the projects, including excavation crews,

consultants, laboratory staff and students at the University of South Florida, photographers and illustrators, analysis staff, secretarial staff, and editors. The Bureau of Environment of the Florida Department of Transportation was especially cooperative in overseeing the many contracts and budgets involved in a project of this size.

One very important source of assistance came from local residents who offered information and artifacts. They helped fill in otherwise blank spaces in the total picture reconstructed by the excavation results.

Finally, B. Calvin Jones of the Florida Bureau of Archaeological Research was responsible for identifying and selecting the thirteen sites worthy of excavation. Without his expertise and continued involvement in the project, much of the information which the Interstate sites revealed would have been lost.



Summary

In 1978 the Florida Bureau of Archaeological Research began excavations at thirteen prehistoric Indian sites in Hillsborough County. These sites were identified by archaeologists when the Department of Transportation (DOT) completed plans to build an Interstate by-pass around the city of Tampa. By a cooperative agreement aimed at protecting cultural resources, the Florida DOT and the Federal Highway Administration supported a program of archaeological survey and excavation to recover information that might otherwise have been lost.

In the beginning stages of highway development, highway planners, archaeologists, and other environmental specialists work together to select a roadway corridor. Archaeologists use surveys made very early during planning to identify major sites that should be avoided or excavated. This is an important part of archaeological work since the success of an excavation will depend on how well a site was surveyed. A good survey will indicate which sites are most important, and what part of a site will produce the best information.

Four of the thirteen excavated sites were the subject of extensive excavations and yielded large numbers of artifacts. Research at these sites helped revise our understanding of Indian life in the Tampa Bay region as early as 10,000 years ago, while the other nine excavations helped to complete the picture.

As the digging for artifacts began, it was obvious to archaeologists that most of the cultural material recovered would be deeply buried, at least by Florida standards. Since the time allowed to dig was limited by construction schedules, bulldozers were used to scrape off sterile layers of topsoil. This was followed by more precise excavation using hand tools. Small pits that measured a square meter, or about three feet on a side, were dug by pairs of archaeologists who accurately

located, recorded, and collected individual artifacts for later analysis. Digging continued to depths of three to five feet, or until sterile soil, free of artifacts, was reached. Although highway archaeology follows strict and sometimes limited time schedules, careful excavation is necessary to insure accurate results.

Once digging is complete and artifacts are out of the soil, the long task of analysis begins. A variety of tests were used to help date artifacts from the Hillsborough County sites, because there were few artifacts that could give accurate clues to age. Sites in the interior of Hillsborough County are difficult to interpret, because acids in the soil have decayed all organic materials over the thousands of years that these materials have been buried. Therefore, no signs of dwellings exist, and all wood and bone objects Indians may have used have long since been destroyed. Lithic, or stone, tools and flakes are all that is left to suggest how the Indians lived. The stone tools discovered in the Tampa Bay region were, therefore, analyzed thoroughly to extract as much information as possible.

The study that centered around these artifacts and the sites from which they were taken not only helped explain the ways Indians hunted and lived but also helped develop an awareness of the environment in which they lived. Paleo Indians (the first North American inhabitants), who lived more than 10,000 years ago, may, for example, have enjoyed a pleasant climate in Florida. At the same time, in the northern part of the continent, Indians were adapting to the colder climates resulting from the Wisconsin glaciation which had recently ended.

Pollen studies throughout the Southeast, and Florida in particular, have indicated what kinds of plants were present in the Hillsborough County area 10,000 years ago. Since pollen is produced by most plants, and because pollen grains are very durable, identification of fossilized pollen in the bottom of lakes has helped botanists identify plants that were present during the

◀ Archaeologists establishing the site grid at the Harney Flats site.

Paleo Indian period. With this information, archaeologists can reconstruct past climates in the Tampa Bay area.

Temperatures during the Paleo Indian period were somewhat cooler than those now experienced in Florida; however, the most important feature of the climate at that time was its uniformity. This was due, in part, to glaciers far north of Florida that acted as a shield from the harsh arctic air. Protected from these frigid glacial air masses, winter temperatures in Florida were not much different than those of summer, with an annual fluctuation of possibly only 12 - 17 degrees. With summers cooler and winters actually warmer, temperatures were relatively constant in the Tampa Bay region. The uniform climate in Hillsborough County could have been very appealing to nomadic bands of Paleo Indians.

Glaciers were far from the temperate landscape of the Florida peninsula during the Paleo Indian period, but the effects of the glaciers were felt throughout the world. Glaciers locked up much of the earth's water, and as a result, sea level was much lower. The extensive systems of rivers and lakes characteristic of Florida today did not exist 10,000 years ago. Instead, only infrequent, small bodies of water were present, and rivers were much smaller. The sea level dropped so far that much of Florida's coastline became exposed, making the state a much broader peninsula than it is now. The reduced amount of water also affected plant life. Only hardy grasses and scrub oaks that grew close to the ground survived these harsh conditions, giving the bay region the appearance of an African savannah.

This unusual landscape, consisting of immense open spaces that were covered by grasses and small plant shoots, was the habitat for many large animals. Among these animals were the mastodons and mammoths, huge elephant-like creatures that Indians undoubtedly hunted on an occasional basis. Another large animal, the giant sloth, used large claws on its front limbs to grasp tree branches in search of food and as protection against predators like the saber tooth cat. This cat, slightly larger than the African lion, had huge canine teeth that it used to tear the flesh of the animals it hunted. All of these animals are now extinct. Two reasons are offered for this extinction: that the animals died as a result of changing climate and vegetation, or that the Indians hunted the animals with no concern for their diminishing

numbers. No one is certain which took place, but it is possible that both played a role in extinction. Animal populations may have become smaller as drought conditions persisted and the hunting pressure applied by the Indians may have simply been the final blow to their survival.

For many years, archaeologists have viewed Paleo Indians as "big game" hunters, constantly moving their dwellings as they pursued elephants and other large animals. However, as studies continue to improve our knowledge of these Indian cultures, we find that, in Florida at least, hunting these very large mammals may have been only an infrequent venture. With the ocean and various river systems close at hand, other food sources may have been available to offset the need for red meat. It is becoming more apparent, for example, that fish, shellfish, and snails were harvested frequently as an easily accessible supply of fresh food. Plants, until recently overlooked as a part of the Indian diet, may also have been very important as a food source. Nuts and fruits were probably collected by women and children, allowing the men to hunt for meat.

In contrast to Florida Indians, Paleo Indians living in the glacially affected parts of North America may have been quite nomadic. Animals living in these frigid zones may have migrated seasonally in patterns that were predictable and easily followed by the Indians. Animals that moved long distances further north may have had less need for long migrations in Florida. Hunting them became a less arduous adventure, and as a result, Florida Paleo Indians developed more stable, or sedentary cultures than their northern counterparts.

As Paleo Indians considered where they would settle, several factors influenced their decision. The presence of fresh water was most crucial, but the need for food and the resources to make tools were also critical. One of the reasons that Florida may have served these early Indians so well is that all of these needs were readily met 10,000 years ago. Each of the thirteen sites excavated in Hillsborough County, for example, indicates that water, food, and lithic supplies were available throughout the region, not only in Paleo Indian times, but also later. It is likely that living sites were chosen that offered easy access to a number of necessary resources.

The Harney Flats site, located along the Interstate corridor, is an excellent example of an Indian base camp, a site where Indians lived for a long time and where they manufactured and repaired their tools. One of the major reasons this site was chosen by the Indians was because it was at a relatively high elevation. The Indians at Harney Flats could observe the Hillsborough and Palm River valleys below. The junction of these two river systems meant that fresh water was always available, and that animals watering below could be hunted with little difficulty.

Because spears and other small hand-held weapons were used to hunt larger animals, Paleo Indians frequently hunted these animals at river crossings or at ravines like the Harney Flats area where the animals were likely to become temporarily immobile. Here, a small band of attackers could kill an animal with less risk of being injured.

The spears Paleo Indians hunted with were wooden-shafted and often incorporated a bone foreshaft tipped with an elongated projectile point. Projectile points made during this period were chipped from chert, or flint, a stone that is hard, will hold a sharp edge, and that will flake in a predictable manner. Thousands of chert tools were discovered at the Harney Flats site. The most diagnostic was the Suwannee point, a long and narrow tool that has a slightly tapered base with small ears, or projections, that allowed it to be hafted or tied to a shaft. Although used mainly as a knife for cutting or sawing, this tool and smaller variations of this type were also used as spear points. The Suwannee points and other tools excavated at Harney Flats helped to formulate a clear picture of Paleo Indian base camp activities in Florida 10,000 years ago.

By about 9,000 years ago, subtle changes in Indian ways of life began to occur, marking the beginning of what archaeologists have called the Archaic period. Three very important changes took place to create the division between Paleo and Archaic Indian times: the environment changed, many of the animals disappeared, and the Indian population increased.

At the beginning of the Archaic period, the dry conditions of Paleo Indian times moderated, and as time passed, wetter conditions prevailed. As the Wisconsin Age glaciers melted, great volumes of water were released to

the oceans, causing sea level to rise rather sharply throughout the entire 5,500 years of the Archaic period. As shorelines advanced, Indian settlements that had developed along the Florida coast were moved inland. River systems and lakes began to appear and were soon teeming with food that Archaic Indians utilized.

Environmental changes spelled disaster for the large grazing animals like the mammoths, and by the beginning of the Archaic period, extinction had taken its toll on almost all of the large mammals common during Paleo times. Archaic Indians began hunting smaller, more localized game. As Indian populations grew, hunting territories probably developed, and boundaries were created that limited the distances Indians could travel before infringing on other hunting grounds. Ultimately this had the effect of making Archaic Indians more stable and less mobile than earlier Paleo Indians had been.

Artifacts found at Archaic sites include milling and grinding stones used to prepare plant foods. This use of plant foods, a more pronounced reliance on small game, and a greater dependence on aquatic foods suggest that Archaic Indians were more sedentary than earlier Paleo Indians. With many varied types of food available near Indian settlements, it was not necessary to travel continually in search of food. This trend continued through the late Archaic times and became even more pronounced after the invention of pottery.

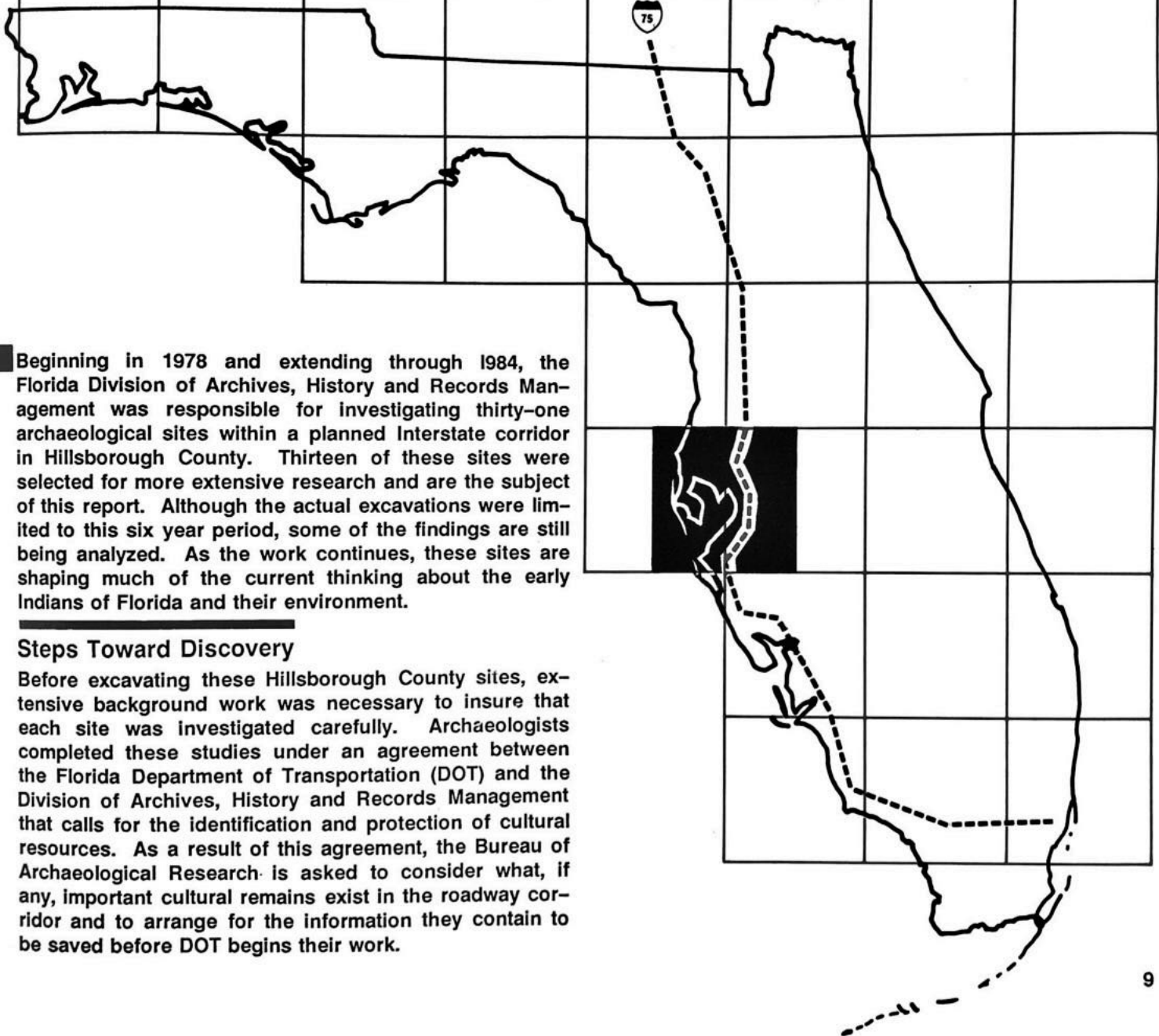
Of the thirteen sites located along the Interstate corridor in Hillsborough County, it is interesting to note that many areas that attracted Paleo Indians also appealed to Archaic Indians. Only ten miles south of Harney Flats is Diamond Dairy, a later Archaic site. The Diamond Dairy excavation produced far fewer shaped tools than the Harney Flats site, but the great number of chert flakes and flake tools indicate that this site was also important to the Indians. While Harney Flats was used as a large base camp, Diamond Dairy was much smaller by comparison and its primary use may have been for the preparation of meat.

One of the most interesting discoveries of all thirteen sites took place at Diamond Dairy. Here, archaeologists located a small stack of flint blanks, or unfinished tools that were flaked only partially so that they could later function in a variety of ways. This stack of blanks was found in an area that was probably used for storage of

tools. Two other areas excavated at the site were used for tool making or resharpening and for the actual preparation of meat. Tools and flakes found in each of the three areas indicated that there were defined work areas within the site. After work was completed at Diamond Dairy and meat was properly prepared, this site was temporarily abandoned to transport the food to a larger base camp, possibly one the size of Harney Flats.

The close proximity of Diamond Dairy to Harney Flats suggests that the Tampa Bay region offered a network of resources that both Archaic and Paleo Indians were familiar with. Artifacts taken from all thirteen sites along the Interstate corridor are evidence that these early Indians were anything but primitive savages. They participated in complex and sophisticated daily activities, taking maximum advantage of the resources around them, and as a result, probably led quite comfortable lives.

Introduction

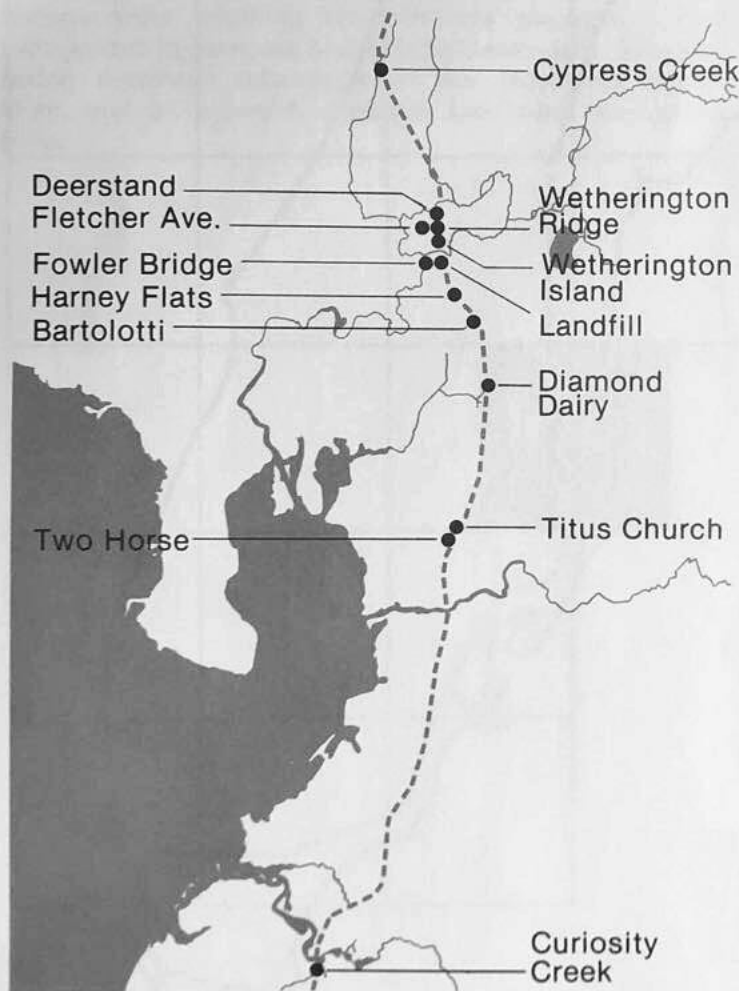


Beginning in 1978 and extending through 1984, the Florida Division of Archives, History and Records Management was responsible for investigating thirty-one archaeological sites within a planned Interstate corridor in Hillsborough County. Thirteen of these sites were selected for more extensive research and are the subject of this report. Although the actual excavations were limited to this six year period, some of the findings are still being analyzed. As the work continues, these sites are shaping much of the current thinking about the early Indians of Florida and their environment.

Steps Toward Discovery

Before excavating these Hillsborough County sites, extensive background work was necessary to insure that each site was investigated carefully. Archaeologists completed these studies under an agreement between the Florida Department of Transportation (DOT) and the Division of Archives, History and Records Management that calls for the identification and protection of cultural resources. As a result of this agreement, the Bureau of Archaeological Research is asked to consider what, if any, important cultural remains exist in the roadway corridor and to arrange for the information they contain to be saved before DOT begins their work.

Finding sites and deciding how important they are is the goal of a phase one investigation. In Hillsborough County, thirty-one sites located along the Interstate-75 corridor were discovered during phase one survey. Survey involves walking the highway corridor, looking for scattered artifacts on the ground surface, or in test holes. The surveyor also inspects topographical features (hills, bluffs, creeks, etc.) of the area, and finally, where artifacts are found, makes small survey excavations. Surveying often follows scientific methods; however, a good surveyor combines science with intuition to locate the sites where people lived and worked. Once a site is located, small pits are dug by thin slicing the soil layers,



Map of the I-75 by-pass corridor through Hillsborough County, showing the locations of sites excavated.

Archaeologists surveying for buried sites using a post-hole digger.

sometimes to depths of three feet or more. Nearby areas are investigated in the same way until an occupation center can be defined. This technique is helpful in two ways. First, given the limited time archaeologists have to excavate a site, these surveys minimize the efforts expended in determining the richness of the site. Second, a survey can often show how a site was used, either for habitation or for occasional use. For example, one stone spear point found during a survey might suggest that the point was lost, by chance, on a hunting trip. A collection of many different types of artifacts in an

area, however, could show that the location was used repeatedly, or for a long time period.

Phase one investigations are important in determining the significance of a site since the results will determine which sites need more work. In Hillsborough County, this initial work led to the thirteen phase two studies considered in this report. Phase two studies are best characterized as test excavations and are more extensive than survey. It is during phase two that the archaeologist defines the size and content of the site. The archaeologist will also, at this time, define the site culturally by indicating when people lived there and what they did. Collecting information to support these conclusions requires considerable digging.

Based on findings made during phase two work, a small number of sites may be determined to be worthy of more extensive excavation or phase three investigation. Phase three excavations are sometimes called salvage excavations because this is the time when the site is studied as intensively as possible to collect information which would otherwise be lost to construction activities. Salvage investigations often produce rarer or unique artifacts and give a more complete picture of what happened at the site. At the Harney Flats site, for example, a phase three site in Hillsborough County, excavations covered some 9,700 square feet. Thousands of artifacts were recovered, revealing when the site was used by the early Indians and what activities occurred there. The other phase three excavations were Diamond Dairy, Wetherington Ridge, and Wetherington Island.

All of the artifacts excavated at Harney Flats, as well as those from the other twelve sites were analyzed in detail. These findings are helping archaeologists change their thinking about the earliest people of Florida. As these ideas evolve and knowledge about these aboriginal cultures expands, the importance of the work increases.

Early Archaeological Discoveries in Florida

Archaeologists began thinking about early man in Florida as far back as the mid 1800's and from that time until the 1880's, many unique discoveries were made in the state. Work was done mainly to acquire museum pieces and this period of collecting has been called the Speculative Era of American archaeology. Collecting was done very hastily and with little care for particulars. The context or

relative position of artifacts within the site was rarely considered and suppositions based on little factual information seemed commonplace. In 1859, Daniel G. Brinton described a mound he had visited as containing "vast numbers of skeletons exposed, some of which I was assured by an intelligent gentleman of Manatee, who had repeatedly visited the spot and examined the remains, were of astonishing size and must have belonged to men seven or eight feet in height". Spectacular finds were of the most interest and many sites were destroyed in the search for grave goods and other exotic material. Museums benefited from these early excavations and they stored artifacts until they were fully analyzed and later exhibited.

By the turn of the century, more care was given to the removal of artifacts from sites as a result of expanded interest in specimens and the information they might possess. This period of more careful archaeology lasted until about 1918 and has been called the Descriptive period. Nels Nelson closed out this era with an important publication titled, Chronology of Florida, which set the stage for new ways of thinking about archaeology. Nelson recognized that the relative age of different pottery styles was represented by their different levels in sites, with the oldest at the bottom. However, he was unable to separate pottery and pre-pottery levels. For example, he did not know that sites or levels with stone tools, but not pottery, were from a longer and earlier period of Florida prehistory. Instead, Nelson wrote, "But the whole subject of Florida's aboriginal history must be worked out in the field, I have merely sought to indicate that there is such a history and that, as Walker wrote, nearly forty years ago, 'the key to the whole matter is a critical study of ancient pottery'".

In 1924, Jesse W. Fewkes of the Smithsonian Institution carried out research on Weedon Island, located at the mouth of Old Tampa Bay in Pinellas County. Fewkes was a trained archaeologist whose accurately described excavations are thought to be the first truly scientific archaeological investigations in Florida. Fewkes studied the complex burial mound on Weedon Island and made spectacular pottery finds (subsequently, similar pottery styles were found in much of North and Central Florida). Archaeologists were beginning to recognize the patterns of prehistoric cultures, not only chronologically, but also geographically.

In the 1930's unemployment rose dramatically as a result of the Depression, and opportunities for work were limited. Nevertheless, archaeology in the State of Florida prospered due to relief programs authorized by Franklin Roosevelt to help reduce unemployment. The Civil Works Administration (CWA), developed to provide jobs and stimulate the economy, helped set the pattern for large scale publicly supported excavations in this country. Archaeologist Matthew Stirling recognized that Florida, unlike many other states, had a climate suitable for outdoor work year round, and thus the CWA completed nine separate projects in Florida. Work accomplished under the CWA and the Civilian Conservation Corp (CCC) had a lasting effect in Florida, providing a foundation for later archaeological reports, and more importantly, making the people of Florida more aware of their state's archaeological potential.

During World War II, archaeological work slowed considerably, but in Florida progress was made developing chronologies based upon earlier excavations in the state. A chronology is developed as archaeological remains are compared in age to construct a sequence of periods from oldest to most recent. In an imaginary site where all these periods occurred together, the oldest would be represented by the deepest level and the succeeding more recent periods would correspond to increasingly shallower levels. Weeden Island is a good example of a chronological period because many pottery finds in the Southeast were compared to and dated by Weeden Island pottery. As a result of investigations like those carried out at Weeden Island and Safety Harbor on Tampa Bay, a generally understood chronology had been constructed for the entire Southeast United States by the end of World War II.

In 1949, Gordon Willey published Archeology of the Florida Gulf Coast, in which he synthesized decades of archaeological work on sites stretching from Alabama to Sarasota. He was able to summarize not only the chronology and the distribution of Indian cultures but also their social organization, religion and economy. Willey's publication was based upon many early excavations in the state, including some he carried out himself. Archeology of the Florida Gulf Coast was a major contribution which still stands as a basic reference for Florida archaeology.

After Willey's 1949 publication, work in the Hillsborough region was comparatively limited, although sites continued to be excavated. Subtle changes in concepts about the cultures Willey and others described were regularly suggested. One major drawback in Willey's work, for example, was his failure to describe cultures existing before the ceramic period, those Indian cultures more than about 3,500 years old. Before the method of radiocarbon dating was developed in the 1950's, archaeologists had no way of knowing the real age of archaeological remains. These materials were often assigned as placeholders for specific time periods. Artifacts of different types, that were actually of the same age, were thought to be a result of change through time or to be introduced from other areas. Because these materials did not fit clearly into a scheme already developed, a separate place in the chronology was assigned to them.

Today, archaeologists are convinced that many variable artifact finds are the result of changes in technology, or the way something was crafted, and that they were not necessarily from a different time period. These technological changes may have resulted from some stress placed upon the culture by the environment, or by trading ideas and materials with other Indian groups.

In looking back over the past 130 years of archaeological study in Florida, there is a rather distinct separation created by Gordon Willey's 1949 study, Archeology of the Florida Gulf Coast. Before this publication appeared, archaeologists were concerned with singular, exotic finds, dating pottery cultures and discovering their distribution. Since Willey's publication, and since the basic frameworks in time and space have been established, archaeologists have concentrated more on how people lived.

A Setting for Discovery

In a very few pages, you will be taken back some twelve thousand years in time to view the environment of Florida's earliest human inhabitants. To prepare for this quantum leap, a knowledge of present-day setting is crucial and therefore the physiography, soils, geology, water systems, climate, and plant and animal life will be reviewed briefly.

Physiography is the description of the physical geography of an area, based on the appearance of the land

CHRONOLOGICAL CHART FOR THE TAMPA BAY REGION

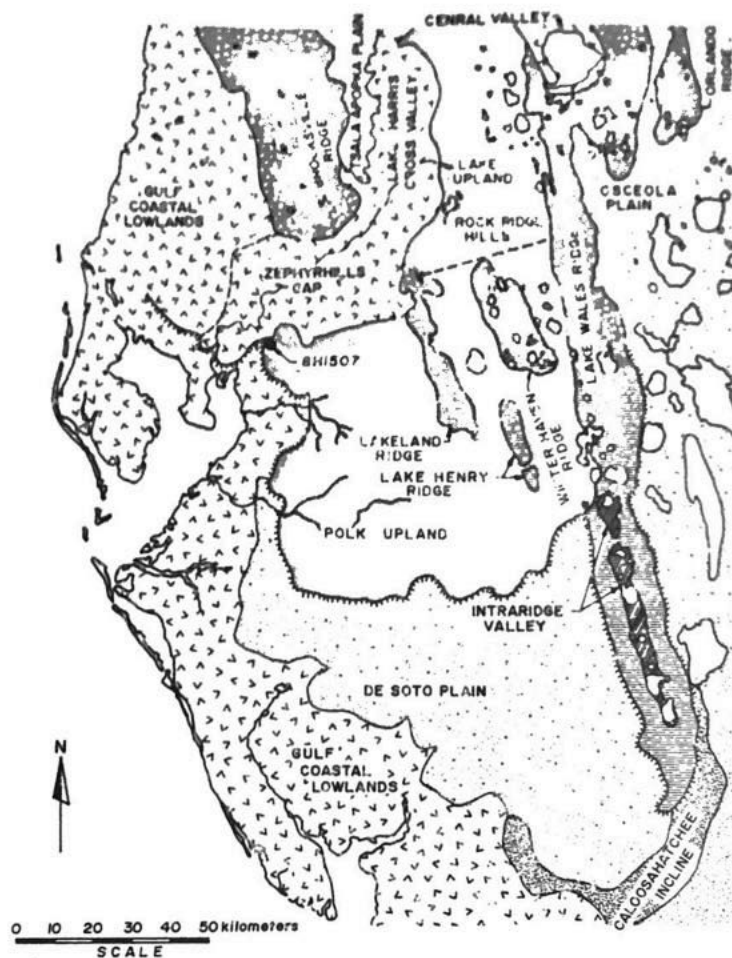
<u>Years Ago</u>	<u>Period</u>
0	
1000	Safety Harbor
	Weeden Island
2000	Manasota
3000	Transitional
	Norwood
4000	Late Archaic
5000	
6000	Middle Archaic
7000	
8000	Early Archaic
9000	
10000	Paleo Indian

surface. In the Tampa Bay region, there are four major zones: the Bay region, the Polk Upland, the Zephyrhills Gap and the Gulf Coastal Lowlands. The Bay region is the most outstanding geographic feature in the Hillsborough County area. Tampa Bay proper extends inland, northeasterly, from the Gulf of Mexico and then subdivides into Old Tampa Bay and Hillsborough Bay. Three major river systems stemming from the north and east drain into the Bay: the Hillsborough, Palm, and Alafia. A simplified physiographic picture of the region shows considerable inland elevations which decrease dramatically toward the Bay.

The most outstanding land feature in the area is the Polk Upland, a landform with elevations from one hundred to one hundred and thirty feet above sea level. The Polk Upland extends from the inner regions of the state to the eastern portion of the Tampa Bay region and is bounded on the north by the Zephyrhills Gap. The Zephyrhills Gap is literally a gap or valley through which the Hillsborough River flows to the Bay and which separates the Uplands from the Brooksville Ridge. On the south, the Polk Upland is bounded by the DeSoto Plain, a lower elevation land ridge that enters the bay region only slightly; and to the west of the Upland lies the Gulf Coastal Lowlands. The Polk Uplands, highly elevated and facing the sea, is a feature of the Bay region very important to early inhabitants in the state and a key to the Indian's settlement.

While the Polk Uplands would appear to be the most prominent physical feature in the Tampa Bay region, the Gulf Coastal Lowlands surely are the most persistent, as they separate both the Uplands and the Zephyrhills Gap from the Bay. In Hillsborough County, the Gulf Coastal Lowlands extend nearly the entire length of the county on the bay fringe. Since Hillsborough County is protected from the ocean by the Pinellas County peninsula, the Lowlands here are much different than they are in other more exposed parts of the state. Protection by the peninsula from the buffeting surf has created a quiet shoreline environment of backwater and mangrove swamps. Dunes and dune-like vegetation, more in keeping with typical Gulf Coastal Lowlands formations, are encountered in the area only along the barrier islands around the Pinellas County peninsula and fronting the Gulf of Mexico.

The Gulf Coastal Lowlands are an extensive formation



Map showing the major physiographic zones of the Tampa Bay area.

consisting of sandy soils that contain most of the archaeological sites which have been excavated in the Bay region. Some of the sands are compressed, making excavation relatively easy, while others are loosely packed and more likely to cave in or "slump" during excavation.

Below the sand layers are three separate geologic formations: the Hawthorn Formation, the St. Marks Formation and the Suwannee Limestone. The Hawthorn Formation is a clay matrix mottled by limestone and thin beds of sand and shell, extending from 50 feet below sea

level to about 25 feet above. This clay is not often encountered in excavations because it is usually deeply buried. It is, however, exposed at the surface in some areas. Due to the average depth at which the Hawthorn Formation lies, this clay stratum is regarded as sterile by archaeologists, meaning that artifacts are not found in the formation.

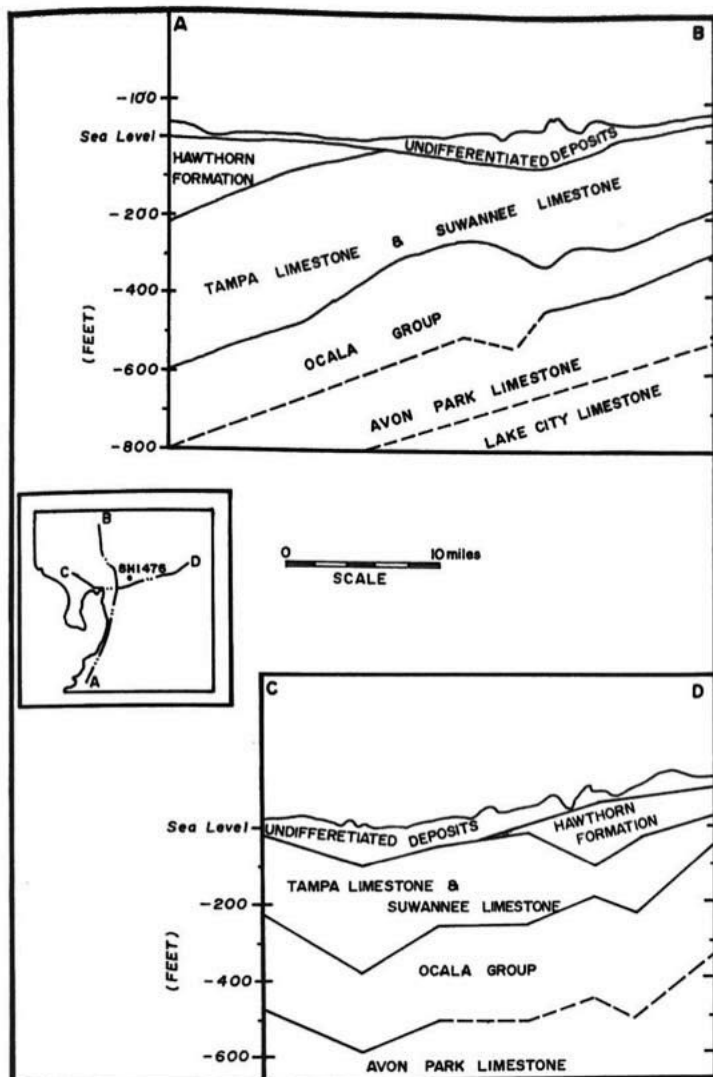
Below the Hawthorn Formation lie the St. Marks Formation and the Suwannee Limestone; the former a hard, dense limestone, the latter a softer, fossil-bearing limestone. These formations pre-date man by many millions of years and therefore they did not come into play in the cultural excavations in the Tampa Bay region, but they were important sources of raw materials.

Geologically, sand and clay form the land surface in most of the Bay region. But, along the Hillsborough River, limestone from both the St. Marks Formation and the earlier Suwannee Formation is exposed. In areas where the St. Marks Formation is exposed, chert or flint is often found. Chert is a silica rock found as a nodule, or small pocket, in limestone strata; it was used by the early people of Florida to make tools. The location of chert exposures obviously played a very important role in determining where early man lived and hunted, and some of the sites excavated in Hillsborough County represent the remains of many centuries of stone quarrying and tool making.

One very critical aspect of an environmental setting, as will be discussed later, is the climate. Present-day climatic conditions in Florida have not changed much since the time of the pottery makers that early Florida archaeologists concerned themselves with. This report, however, takes a look at man's presence on the peninsula beginning some ten thousand years before the pottery cultures and a surprising change in climate took place over this period.

Climate is an important factor in plant and animal populations. Truly tropical environments, for example, support more diverse populations of both plants and animals than other environments. Even though the Bay region does not have an extreme tropical climate, it does support a wide range of plant and animal species.

Florida harbors some unique plant varieties — the state has more native trees than any other state except Hawaii — and over 3,500 vascular plants are found in Florida.



▲
Geologic cross-section of the
Tampa Bay area.

Most of these plant species are found inland beyond the beaches and dunes. The coastal strip, as it is sometimes called, is relatively barren of vegetation. Those trees and other plant species that do exist, however, make excellent habitats for the animals that are present. Florida has more animal species (880 vertebrate species) than any other similar area of the world, in part due to the over-

lapping marine and freshwater environments.

The environmental setting in the Florida peninsula is a pleasant one, much different from the remainder of the continent. Early man would have found his environment quite different some ten thousand years ago, but it would still have been relatively moderate and very different from the glacially encrusted northern landscape.



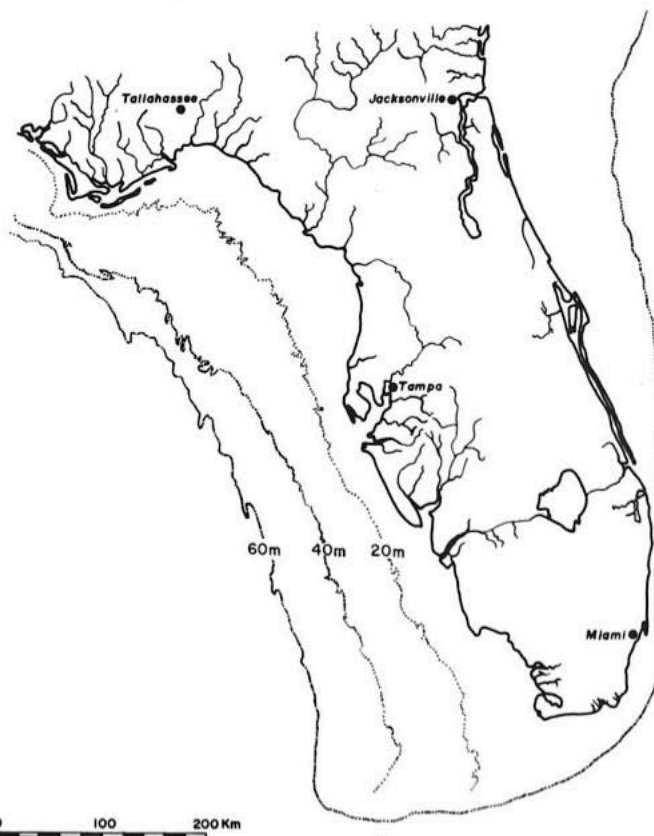
Environment of the Paleo Indian Period

The period of time when man first arrived in Florida some 10,000 years ago is referred to as the Paleo Indian period, and corresponds to the Upper Paleolithic of Europe. The environment then was much different from the present environment. Most noticeable among the differences were a lower sea level, a cooler climate, and the presence of some large, extinct animal forms.

About 12,000 years ago, Florida was roughly double the size of the state today. This increased size was a result of a lower sea level. Sea levels have changed greatly throughout the world's history, and in Florida many variations have occurred over time. In fact, during the the Upper Mlocene period, some 25 million years ago, the sea level in Florida was about 260 feet above the present level. By the time of the late Wisconsin glaciation, about 25,000 years ago, the sea level had dropped to nearly 425 feet below the present. This drop in the sea level was a result of the earth's water supply being locked up in the glacial ice. Although the glaciers never really extended as far south as Florida, the effects of the glaciation were felt here.

With a lowered sea level, much more of Florida's total land area was exposed. The Atlantic coast portion of the state did not expand very much because there is a sharp drop in the marine shelf along the Eastern coast. The Gulf coast side of the state would have looked much different than it does today, however, since the marine shelf there slopes very gradually. The lowered sea level exposed a great portion of the state that had previously

Phase Three excavations at the Harney Flats site in Hillsborough County, Florida.



0 100 200 Km

Map showing the coast line of Florida at various sea levels.

been, and is now, covered by water. Twelve thousand years ago, Florida was still a peninsula, but it was much broader than it is now.

As time progressed, the last of the major ice sheets began to melt and the glaciers retreated farther and farther north. The melting of the glaciers restored water to the oceans, and the sea level began to rise. From the time the Indians first entered Florida about 12,000 years ago until about 5,000 years ago, minor fluctuations in sea level occurred due to alternating dry and wet periods, but the overall sea level rose rapidly. By the latter date, precipitation increased sharply, and the water table and sea level that presently exist in the state had become more or less stable.

Because of the much lower sea level, the Bay region was not as we know it today. In fact, the Tampa Bay area would have been some one hundred miles inland from the altered sea coast. The dry Tampa Bay is about the only physiographic feature that would have been different, however. The three major land features — the Gulf Coastal Lowlands, the Polk Uplands and the Zephyrhills Gap — were basically unaltered at this time. Minor changes in the course of rivers and streams probably occurred, but the general physiography of the Bay region would have been the same.

One aspect of the paleo-environment that was very different from the present-day environment was climate. Florida's current appeal to tourists and permanent residents stems, in part, from its attractive climate. The climate during the Paleo Indian period was different, as mentioned earlier, but Florida was still warmer than areas to the North. Summer temperatures were somewhat cooler than present averages. Winter temperatures, however, were actually warmer during this time because the ice sheets to the north protected Florida from the harsh Arctic winds. The glaciers, which warmed the winters and cooled the summers, helped to establish uniform weather patterns over the entire year.

Until recently, it has been difficult to determine what types of plants were dominant at the time Indians first entered Florida. However, in 1971 W. A. Watts began studies that indicated what plants were present in Florida during the Paleo Indian period. Watts analyzed sediments in lake bottoms in the southeastern United States, particularly Lake Louise in Georgia and Mud and

Scott Lakes near Tampa, and found fossilized plant pollen. Close study of the fossilized pollen, preserved over thousands of years, indicated which plants were present at different periods of history. Today, archaeologists use Watts' studies to help recreate the environment Indians lived in.

Watts observed that deciduous forests of oak, beech, hickory and other broad-leaved trees that had survived well in previously moister periods died out with the drier conditions that prevailed during Paleo times. The sandy, coarse nature of the soils in Florida was partly responsible for this decline, since the soil was incapable of holding the moisture that these broad-leaved trees required. Drier conditions allowed only very hardy varieties of oak to survive. From about 12,000 to 9,000 years ago, these oaks were the most common tree in Florida. Stands of oaks, mixed with patches of open prairie, consisting of ragweed and sturdy grasses, would have reminded a present-day observer of the savannas in eastern Africa.

By approximately 9,000 years ago, Indians in Florida experienced temperatures similar to those of today. From this time until approximately 7,000 years ago, alternate periods of wet and dry conditions were common, but in general, rainfall was increasing. Seasons were also more sharply defined, as warmer summers and cooler winters resulted from the retreat of the glaciers. The cooling effect the glaciers had had on the summers and the barrier they had provided for warmer winters were no longer factors in Florida's climate. As the ice sheets melted, more water was restored to the water table, and many more varieties of plants and trees could grow. Longleaf pines appeared at this time and have persisted as the dominant plant in Florida over the past 5,000 years. These pines were scattered throughout the peninsula at first, but by 5,000 years ago, they shifted to upland areas. Cypress swamps developed along newly formed lakes, and this wetter environment may have pushed the longleaf pines into their drier upland domain. Many new types of plants appeared, with broad-leaved trees, palmetto and holly paving the way for the modern vegetation that presently covers Florida.

There were other aspects of the paleo-environment that would be unfamiliar to us today. In addition to the different plant communities, there were many different

animals present during the late Pleistocene era when Indians came to Florida. Actually, many of the birds and reptiles that we know today have very long histories and were commonly seen by the Indians. However, some of the large mammals present in the Indian's environment are now extinct. These include the mastodons and mammoths, the sabercat, the dire wolf, the ground sloth, and the extinct bison.

Both mammoths and mastodons were common in Florida at one time. Fossil remains from these large, elephant-like mammals are the most commonly discovered of all the extinct animals within the state. Mastodons differed from the mammoths in that they had straighter tusks and their teeth were shaped and positioned differently. Based on this tooth structure, scientists believe that mastodons were browsing animals. Woolly mammoths, associated with the ice sheets to the north, never found their way into the Florida peninsula, and the mammoth remains found in Florida are of a less hairy, more elephant-like variety than their northern relative.

Other animals found in great numbers in the paleo-environment were the dire wolf and sabercat. Sabercats were large animals, approximately the size of an African lion, with a well developed front body and slighter rear quarters. The very large, protruding, curved upper canine teeth of the sabercat made him easily recognized and feared. Ungulates, including many members of the deer family, ranged from Florida to California and it is likely that the sabercat had a similar range. Massive jaw and leg bone remains of other animals found throughout Florida show scars and lesions, suggesting that the sabercat was a powerful and violent predator.

The dire wolf was also a predator, but in contrast to the sabercat, the dire wolf likely hunted in large packs. This animal was as large as a timber wolf, but proportionately squatter. The large, well-developed teeth of the dire wolf resemble those of present-day hyenas, suggesting similar predatory and group hunting tactics.

The ground sloth, with species ranging in size from a small bear to a giraffe was a slow-moving inhabitant of the paleo-environment. The sloths found in Florida were medium-sized, about ten to twelve feet in height. They were woodland and forest animals with shaggy fur coats and broad, shortened tails that assisted in balance when they browsed among the trees. Since the sloth was very

slow-moving, it was probably an animal preyed upon frequently by others; however, its long claws, normally used to grasp tree branches, could have been an effective form of defense against predators.

Several species of bison were common when the Indians first came to Florida. These animals were the ancestors of the modern bison that survived very successfully until more recent historic times. In fact, they would probably still live in today's environment had not the European settlers in North America killed them in great numbers during the 1800's. Those researchers who say that the Indians living in the Paleo Indian period did not drive the mastodons, mammoths and other large animals to extinction, point to the bison, a survivor until nearly recent times.

There are two basic explanations offered by archaeologists to account for the extinction of the large mammals during the late Pleistocene. One attributes the extinctions to overkill by the Indians, the second to the sudden and severe climatic changes that occurred at that time. Much has been written by proponents of each philosophy; however, no concrete evidence exists to determine exactly which of these events caused the great mammals to die out.

Probably the less convincing argument is that Indians killed Pleistocene mammals in such great numbers that they brought about their extinction. For many years, the concept of Indians as "big-game" hunters has been given too much credibility. There is little evidence to suggest that the Paleo Indians spent as much time hunting mastodons and mammoths as was at one time thought. In fact, Richard MacNeish wrote in 1964 that Indians were far from being the great hunters that they were supposed to have been, but probably found "one mammoth in a lifetime and never got over talking about it".

Large mammals like the mastodons and mammoths would have been difficult to hunt, requiring large bands of hunters to risk their lives. It is hard to imagine Indians spending much of their time hunting difficult prey like this when smaller animals were readily available at much less risk. Deer, for example, were most likely killed in much greater numbers than the gigantic elephant-like mammals, and yet the deer has survived through the present. Those scientists who support the

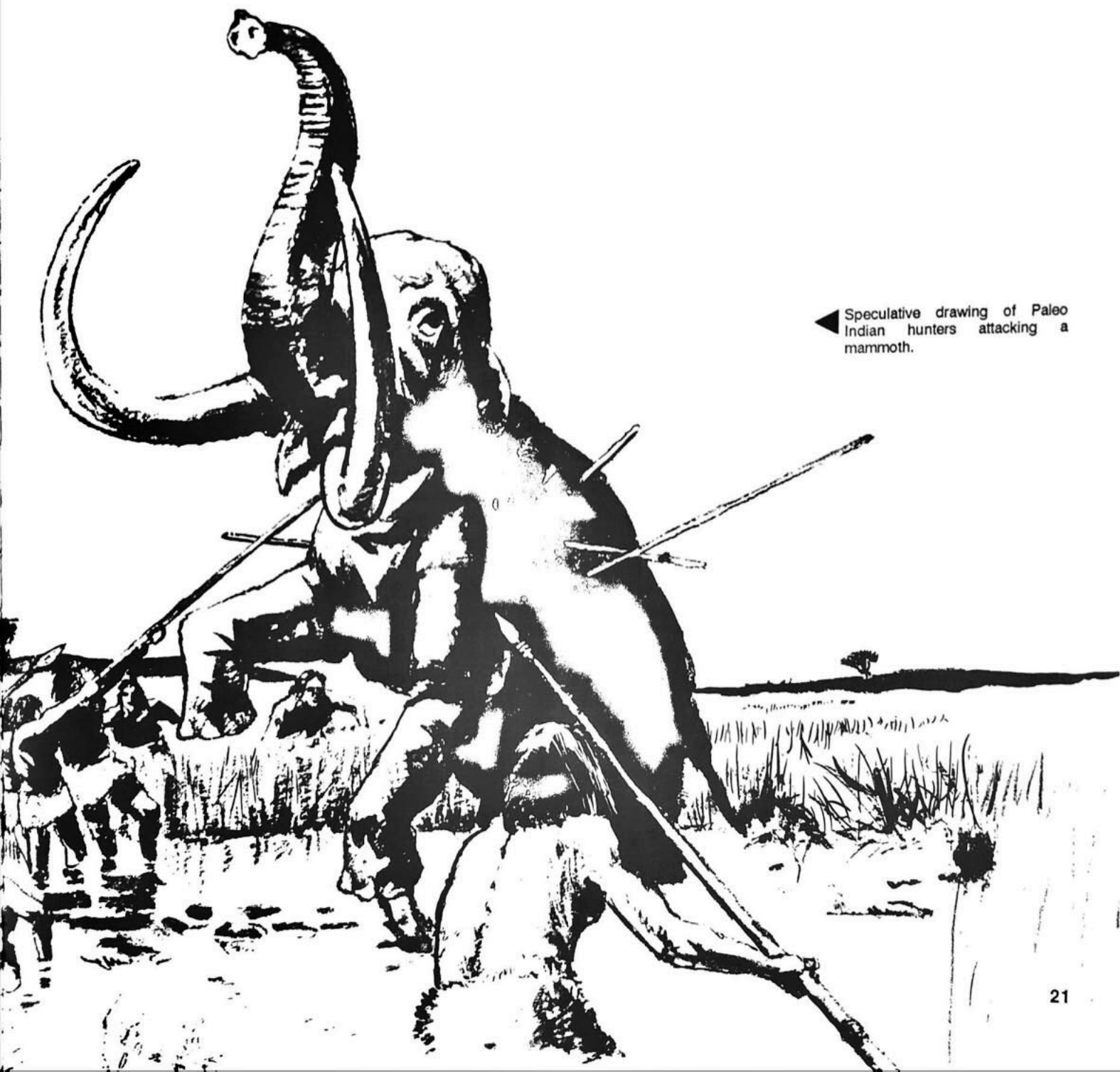
Idea of a climate-related extinction note, too, that many very small animals disappeared at the same time the large ones did, indicating that man probably had little control over extinction.

A severe climatic change that created alterations in vegetation may be a much better explanation for the extinction of the large mammals during the late Pleistocene. As discussed earlier, the vegetation in North America between about 12,000 and 9,500 years ago resembled that of African savannas. This grassy environment would have readily supported the large mammals that required a vast range for food. Toward the end of this time, however, dry conditions persisted and the water table was very low. Large animals like the mastodon and the ground sloth that required large and constant sources of plant foods and the water contained in the plant tissue had to range even further in search of food. As a result of the dry conditions, however, such plants were slowly vanishing. It was about this time that the extinction of the large animals occurred, and many archaeologists think the reason was that the animals could not adapt well to their rapidly changing environment. As certain types of vegetation disappeared or were replaced by other types of plants, browsing and grazing animals of the late Pleistocene either adapted or became extinct.

It is difficult to say definitively whether man hunted these large mammals to extinction or whether the environmental changes were simply too severe for them to survive. Archaeologists now tend to agree that perhaps a combination of both these events caused the disappearance of the late Pleistocene mammals. The appearance of the early Indians and the effect they had on the animals they hunted may have been the final blow required to eliminate animals that were not able to adapt easily to a dry environment.

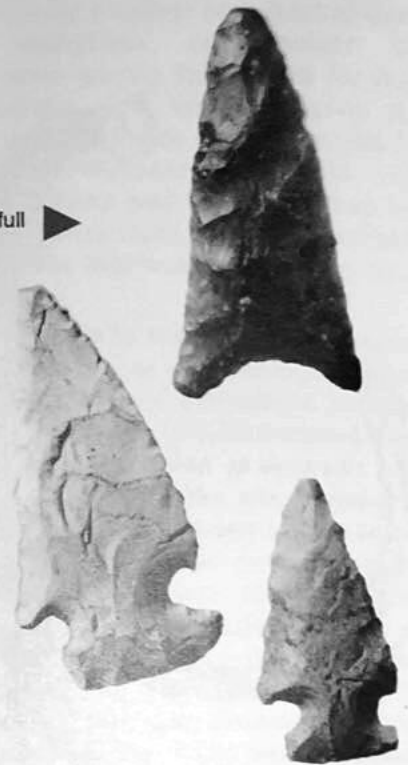
There is an interesting footnote to the extinction question where Florida is concerned. Most archaeologists agree that the date for the major animal extinctions is about 10,000 years ago; however, recent unsubstantiated finds in Florida have been radiocarbon dated at between 8,000 and 7,000 years ago. At the Devils Den site, remains of the sabercat and other Pleistocene mammals were found, indicating that Florida may have been one of the last major refuges for these large animals. Given Florida's environment, this last resort concept is certainly in keeping with a severe climate change. While dry, cold conditions grew worse in the northern part of the continent, Florida's warmer, moister environment may well have been the last refuge for dying animal populations.





◀ Speculative drawing of Paleo Indian hunters attacking a mammoth.

Early Archaic projectile points (full size)



The	Paleo	Indian				
Way	of	Life				

In North America, the late Pleistocene environment was quite diverse. The extreme north and northwest portions of the continent, heavily coated with glacial ice, were cold and inhospitable. Since the earliest Indians arriving in North America entered from the northwest across a land bridge that connected this continent with Asia, archaeologists know that this climate, though extreme, was tolerated by Indians for many years. Gradually, the Indians migrated southward to exploit new territory and to escape competition for food and space.

In the eastern part of the continent, temperate woodlands were probably a welcome relief to the Indians in their move southward. Compared to the barren, tundra-like environment farther north, the woodlands offered a wider variety of edible plants and animals and more protection from the elements. As populations increased all over North America, people began moving even further south. Accustomed to the dense woodlands of the northeast and Atlantic coast, they found that the woodlands farther south were more open and mixed with large patches of heavy grasses. They discovered the southeastern environment. When they finally reached Florida, the Indians must have marveled over the rich mixture of forest, grasses, sands, and water.

These earliest settlers of North America, including those who migrated into Florida, are referred to by archaeologists as Paleo Indians. Paleo Indians were attracted to the Florida peninsula because of the climate and resources. On both the east and west coasts, the oceans provided food in the form of fish and mollusks. Particularly in Hillsborough County, major river systems provided fresh water and helped to attract animals. Climate

certainly played a key role in the Indian's desire to live in Florida. A warmer climate meant that day to day living conditions were more tolerable.

Over the past twenty years, archaeologists have been proposing models of how Paleo Indians lived in North America. Since environments in the extreme north varied considerably from those in the Southwest and in the Florida region, noticeable differences in lifestyles are obviously to be expected.

There are ideas about the way Indians lived, however, that are widespread. Probably the longest held belief about the Paleo Indian, but one that is being questioned more and more, is that they were nomadic peoples who travelled constantly in search of big game animals. Since the mastodons, mammoths, and other mammals of the late Pleistocene coexisted with Paleo Indians, it is reasonable to suggest that they did, in fact, hunt large animals and use them for food. The debate archaeologists have about the Indian lifestyle concerns the amount of time spent pursuing these animals.

If large blocks of time were spent hunting and searching for big game, little time was left for anything else. If big game was hunted on a regular basis, living quarters would have been constantly moved, dependent entirely on the movement of the animals. On the other hand, if foods such as fish or plants were major parts of the Paleo Indian diet, then habitation sites may have been more permanent. In Florida, the climate and the physiography of the peninsula indirectly suggest that the Paleo Indians had access to a varied diet, consisting of foods other than just meat. It is reasonable to think that assured food sources, like plants and sea foods, would be critical

factors involved in where the Indians settled and the duration of their settlement.

Indian settlement locations were dependent upon what archaeologists call fixed resources. Water, stone resources (chert, primarily, used for tool-making), firewood, and plants are all examples of fixed resources. These natural resources were required elements of the environment when Indians considered settlement. Animals were searched for and hunted away from a settlement area, but fixed resources could have been procured locally, if a settlement was wisely chosen. The important aspect of fixed resources was that they could be counted on and would provide a living even if hunting away from the settlement proved unsuccessful. Indians were influenced greatly by the presence of these fixed resources, and the close proximity to fresh water, food resources, the stone resources necessary for tool-making, and highly elevated terrain for habitation were given primary consideration when settlement locations were chosen.

Water is critical for settlement. In the Tampa Bay region, three major river systems provided Paleo Indians with fresh water and the Gulf of Mexico meant that sea food was also available. Especially during late Pleistocene times, when dry conditions prevailed, the presence of fresh water was a primary concern. A very low water table throughout North America and in Florida suggests that free-standing water was rarely available. Indians had to provide themselves with ample fresh water when exploring or hunting in new territories to counter the possibility of not finding water along the way.

Archaeologists recognize the Paleo Indian's requirement for fresh water, and therefore when surveys are conducted in search of Indian sites, the basic physiography of an area is given first consideration. The joining of river systems or shorelines of large lakes are likely to have attracted Indian settlers. A good surveyor can often point directly to these sites simply by careful examination of a topographic map or by visiting a geographic area.

Once good water sources were found, Indians then considered other resources important for settlement; primary among these was food. The question of whether the Indian's diet consisted of primarily meat or of meat and plant foods, is an issue which is being discussed more and more. Undoubtedly, Indians in Florida did hunt big

game animals. In North Florida, where bone preservation is limited, it was refreshing for archaeologists to uncover a young bison with a projectile point fragment embedded in its skull. Finds such as this reveal that Indians did, indeed, hunt larger animals. However, aimless wandering in search of large game, as a constant activity, does not appear likely, and many archaeologists now question the Paleo Indian's life as a "big game" hunter in this sense of the word. It is more reasonable to think that much of the Indian's time was spent hunting smaller game and that he supplemented his diet heavily with plants.

It is hard to say where the idea of early man as a big game hunter came from. Possibly the mere presence of so many large animals during the late Pleistocene would make many think that the Indians spent much of their time pursuing them. In reality, the only knowledge archaeologists possess relating to this question are those artifacts that actually appear in the fossil record.

Sites where animals were killed and butchered by Indians thousands of years ago offer archaeologists some surprising results. At the Blackwater Draw site in New Mexico, remains of only one mammoth were found, and it is uncertain whether this one find was a result of the animal being killed, or whether it died of natural causes. To reinforce this scarcity of large animal remains, spear points discovered at Blackwater Draw were often of a small variety, indicating that smaller game was many times the target for these Indians.

Actually very few large animals such as mastodon, mammoth, and bison appear as part of these fossil assemblages, but many fossilized remains of small animals such as rabbits, possum, ducks and turtles are present. In fact, an extinct land tortoise excavated at the Fowler Bridge underwater site in Hillsborough County shows evidence of butchering by early man. This is an indication that Indians may not have relied on the very large animals for food as frequently as once thought, and that many smaller animals, more easily hunted, were likely to be a more consistent and readily available food source.

A major difficulty centering around the Indian diet is the lack of preserved plant foods from the Paleo period that might suggest plants were a food source. Few actual plant remains are uncovered at excavation sites throughout North America, and this is true especially in Florida

where soil acidity decomposes plant tissues rapidly. The only plant remains ever found at a Florida Paleo Indian site come from the Little Salt Spring site which produced hickory nuts carbon-dated to about 9,200 years ago. Locating the nuts was not conclusive evidence that Indians used them as food, but a 9,000 year old wooden mortar found in conjunction with the nuts does suggest that these or other similar foods were processed and consumed.

Similar mortars and grinding stones have been located among artifacts recovered from archaeological sites over all of North America and indicate that plants were an important part of the Indian diet. Recently, a very early Paleo Indian site in Chile, South America, produced excellent evidence relating to the question of plants as a food source. This southern Chile site, some 13,000 years old, was covered over time by a peat bog, composed of soil and decayed vegetable matter, that prevented air from reaching the fragile evidence of the Indian's life-ways. Artifacts, virtually unharmed over those thousands of years, show that these Indians lived mainly on wild plants but frequently supplemented their diet with meat. These findings are nearly the reverse of most research, which suggests that meat was the primary food which was only sometimes supplemented by plants. Important sites like the Chilean one have archaeologists pondering the possibility that Indians might have relied heavily on plant foods, not necessarily by design, but because they were easy to collect.

Ethnographic studies of recent hunting and gathering peoples support this picture of the Indian's reliance on plants. One such study done in South Africa shows that aboriginal African people use plants for about seventy percent of their total diet.

Particularly in Florida, the question of what the Indians ate centers on the preservation problem. Better preservation of organic material would be likely to indicate a dominance of plants in the Indian's diet. Plants would have been easy to gather and their nutritional value is great. However, until a Florida site is uncovered that has been somehow protected over a span of 12,000 years, it is unlikely that the problem will be completely resolved.

It is possible that Indians took advantage of the food offered by the ocean. Although techniques of salt water fishing were skills probably not possessed by the Paleo

Indian, the gathering of mollusks along the shoreline could have been easily accomplished. Nets were possibly employed, and though some fish may have been trapped, large numbers of clams were probably the main food that the ocean provided. Freshwater fish were certainly a more constant food source for the Indians as they could spear, trap, or net them in shallows. Freshwater snails could also be gathered from these same water sources. Evidence of fish remains and tools used in catching them have been found in fossil assemblages from the late Pleistocene period.

Although food obviously played a very important role in determining where the Indians settled, tools were also a critical concern. Stone tools were needed for hunting and for processing food. A lithic material Indians relied on most commonly for the manufacturing of tools was chert, in part because of its hardness, but more importantly because chert flakes or chips in a predictable fashion. A settlement area did not require that chert was available in the immediate area, but it was necessary to be able to find it within a short distance.

Again, when archaeological surveys are conducted to locate Indian settlements, a good surveyor will consider the lithic resources that could have been available. He or she will also look closely at the topography, because Indians were well acquainted with the advantages their physical environment might afford. Most Indian sites, for example, are elevated. Some archaeologists might suggest that high ground was simply drier and would drain more readily over longer settlement periods. However, settlement decisions were undoubtedly more complicated than this. For protection, it would have been much easier to observe the approach of strangers from higher ground. More importantly, though, basic needs for food and water directed the Indians toward higher elevations.

Higher elevations allowed Indians to observe animals that they hunted, to learn the animal's behavior, and therefore to successfully hunt them. It is difficult to speculate what hunting methods were actually employed by Indians, but the tools found by archaeologists at the Hillsborough County sites and elsewhere suggest some basic techniques.

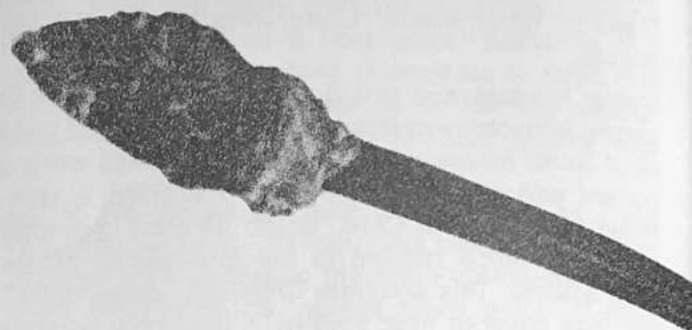
The diagnostic tools found among Florida Paleo Indian artifacts are the Suwannee and Simpson lanceolate types. Paleo Indians did not notch points along the base

as later Indians did. The generally larger size of the lanceolate-shaped spear points and their unique shapes distinguish Paleo points from later tools. These spear points were attached to the end of wooden shafts with binding of fiber or leather. This attachment, known as hafting, was probably quite simple during Paleo times, but by Archaic times, the concept of notching helped to streamline the appearance of a spear.

Many of the Suwannee or Simpson points were used as knives; however, smaller variations could have been used as spear points. Throwing a large spear with force was difficult, and therefore an atlatl was used. An atlatl was a short-shafted tool that was notched at one end to fit the back of the spear shaft while the opposite end of the atlatl fit the hand. Slung over the shoulder, this tool could hold the spear comfortably in a ready position until a target was sighted. During the throw, the atlatl served to propel the spear with great force toward the intended target. Even with the aid of the atlatl, Indians needed to be relatively close to their prey to assure any degree of accuracy. Therefore, large animals were probably ambushed in areas where they were likely to be slowed in progress or singled out from a group. Ravines or wooded corridors would effectively slow animals, allowing for the employment of skillful hunting techniques.

Indians hunted mastodon or mammoth-sized animals in groups. A larger band of Indians provided more protection for the entire group, and because Indians were unlikely to be the marksmen they were portrayed to be in movies, a group helped to insure a successful kill.

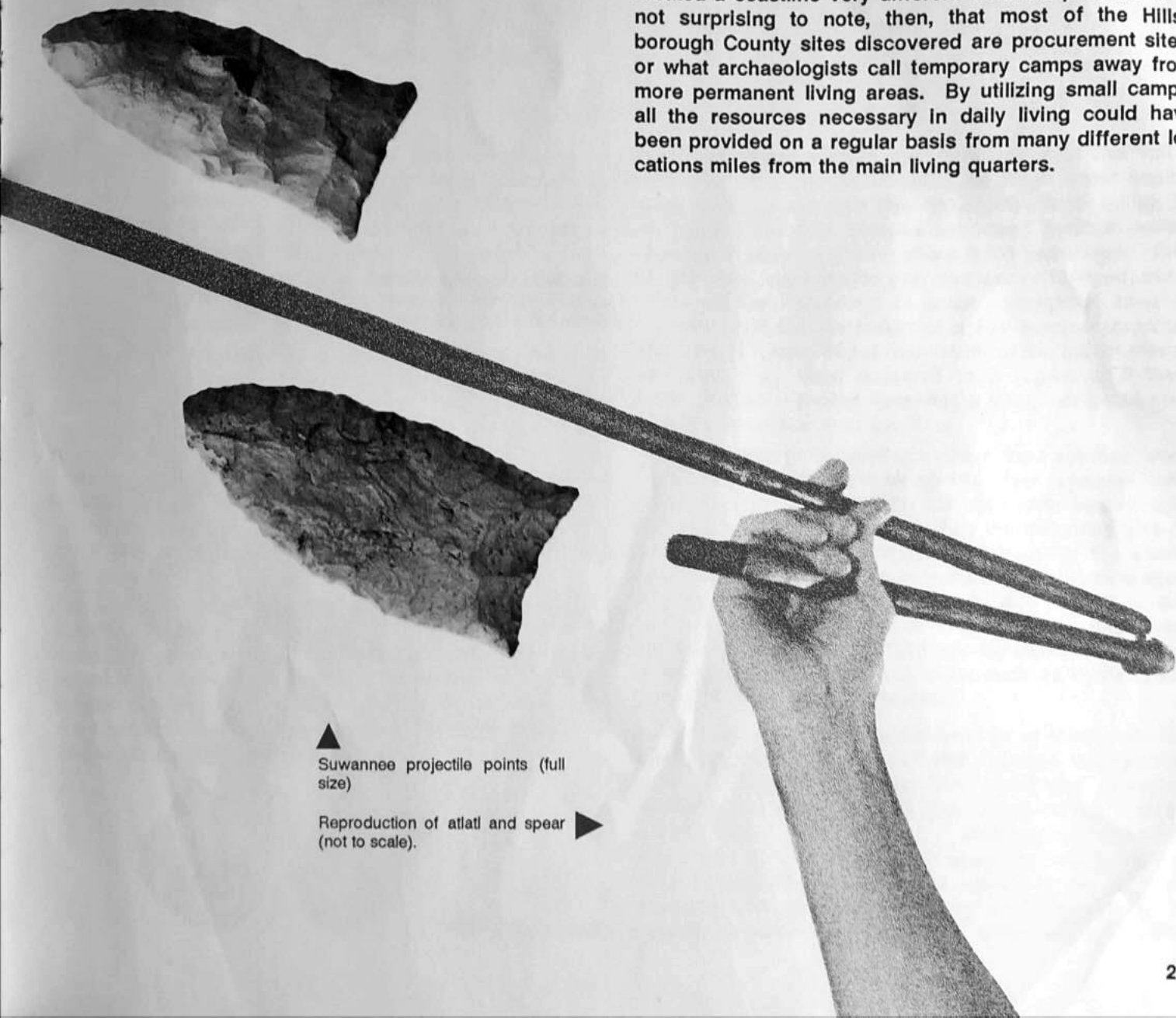
Higher elevations were often selected to give Indians a clear view of river basins, preferably areas where two or three rivers or streams joined. Animals were attracted to such locations, often incorporating watering stops as part of a normal routine that Indians could observe and rely on when hunting sites were considered. In fact, river crossings hindered the mobility of watering animals and Indians took advantage of the animals' plight, killing them in great numbers at such sites.



Some of the best kill sites archaeologists have investigated are underwater sites. Spear points found lodged in many of the bones recovered at fast-water crossing sites give clear evidence that these animals were hunted there. Surprisingly, bone remains from these kills settle rapidly to the river bottoms and do not disperse great distances downstream. This is clearly indicated by large numbers of animal remains found together in specific river locations. Such finds tell archaeologists about the importance of these river sites for hunting and allow them to predict where other similar kills may have taken place.

In deciding where to establish a settlement, Indians considered many of the factors just discussed and others possibly less tangible. Superstition may have outweighed even the most important resources, for example. But, food and water were undoubtedly high on the list of necessary resources. Understanding these settlement requirements is important to the archaeologist in his search for Indian cultural remains. In Florida, archaeologists understand the requirements necessary for settlement, but have a problem locating these sites. Florida's coastline, an area very suitable for Indian settlement, was drastically different during Paleo times. As mentioned earlier, a very low water table during the late Pleistocene

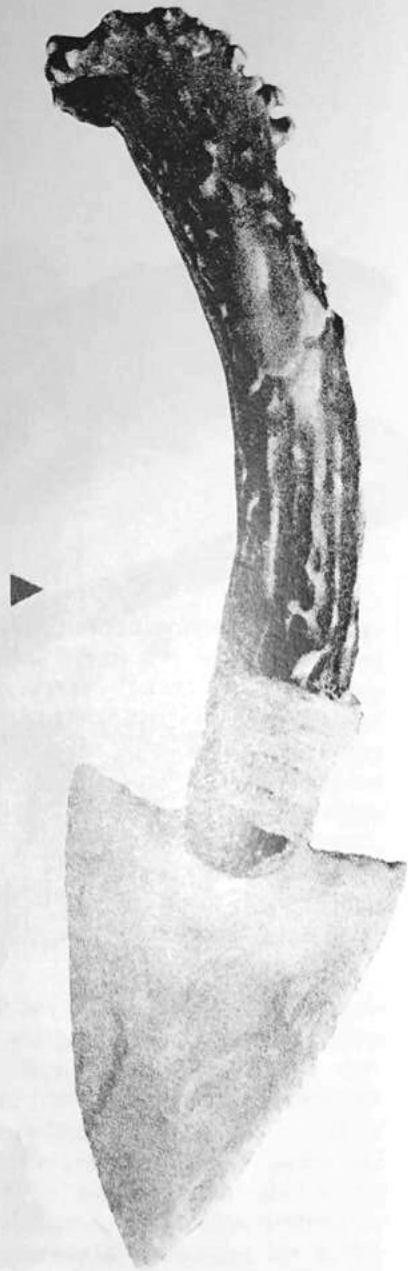
created a coastline very different from the present. It is not surprising to note, then, that most of the Hillsborough County sites discovered are procurement sites, or what archaeologists call temporary camps away from more permanent living areas. By utilizing small camps, all the resources necessary in daily living could have been provided on a regular basis from many different locations miles from the main living quarters.



▲
Suwannee projectile points (full
size)

Reproduction of atlatl and spear ►
(not to scale).

Reproduction of a Middle Archaic
hafted knife from the travelling
exhibit 300' x 35 mi. (full size).



Archaic Indian Lifeways

The transition from Paleo to Archaic times was subtle. A date of about 9,000 years ago is generally accepted as the division between late Paleo and early Archaic times, but the date is not precise. Regardless of the actual date, three very important changes took place to mark this division between the two periods: the environment changed, many of the animals in that environment disappeared, and the Indian population increased.

The environment played a crucial role in the evolution of Indian cultures from the Paleo to the Archaic. Sea level, quite low during Paleo times, rose. Although several theories have been offered regarding the changes in sea level, the one most widely accepted is that, from the late Pleistocene forward, sea level has been rising steadily through today. The sea level rise from the Paleo Indian period through the Archaic times was quite sharp, but since that time, sea level rises have been gradual and very slow.

The sea level rise had two effects on Archaic Indian cultures in Florida, one was a progressive shift of habitation centers inland, the second was an increased reliance on freshwater snails. These two events were related because as the seas rose and habitation sites were naturally pushed inland, new settlements developed where food sources were rich.

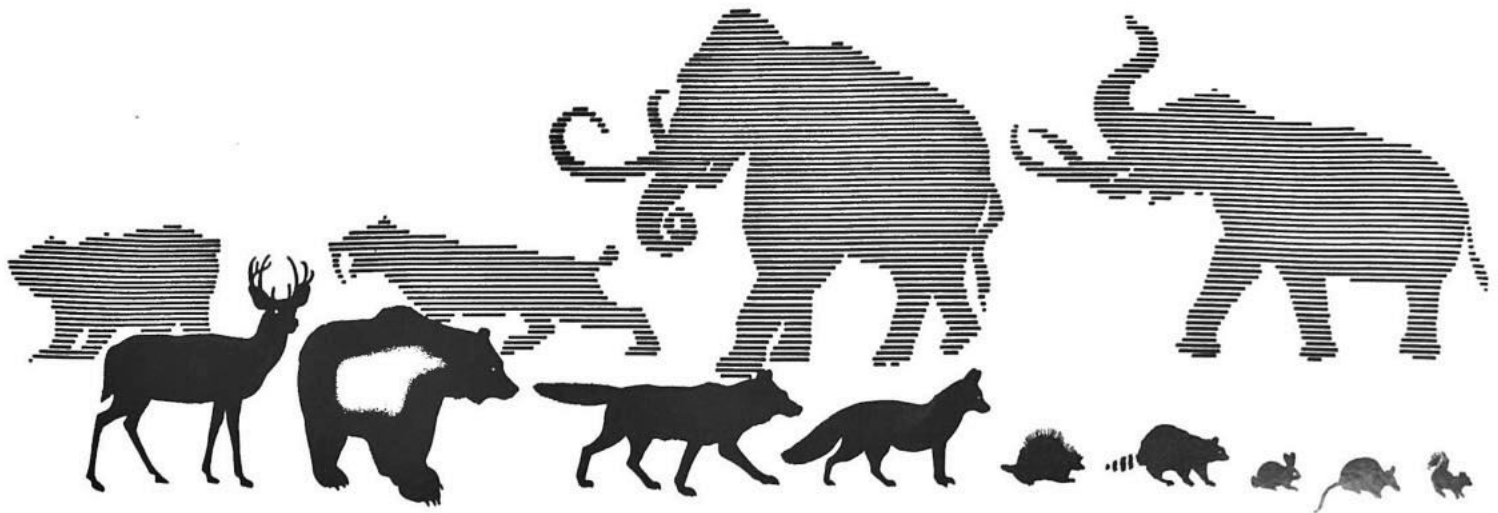


◀ Freshwater snails.

New freshwater systems that appeared with the water table rise were excellent habitat for fresh water snails. As a result, areas like the St. Johns River valley in northeastern Florida became important Archaic Indian settlement areas beginning about 6,000 years ago. This river system, once visited only seasonally for food, soon witnessed the harvesting of snails throughout most of the year, with the exception of a few summer months. Pond snails formed about one-fourth of the Indian diet at this time. They were gathered in a region until their numbers were depleted, requiring a village or settlement shift to some other river location.

Cultures evolved in locations where food sources were plentiful, and habitation along the river systems was prolonged. However, Indians did not gather these snails with much discretion, evidenced by the dwindling size of shells in shell heaps over time. Apparently the snails were not given ample time to mature properly, thus their size decreased over time. By about 2,500 years ago, the nutritive value of the smaller snails became negligible. Therefore, with the end of Archaic times, Indians began to harvest coastal marine animals, such as oysters, instead of freshwater snail species.

As the seas rose, water tables over all of North America were replenished with water that fostered vegetational growth. Alternate wet and dry conditions prevailed beginning about 9,000 years ago, but once the Archaic period was well underway, precipitation definitely increased. A new environment appeared during Archaic times. Longleaf pines began to replace or mix with the oaks that were so dominant during the Paleo period. In general, by about 7,000 years ago, a warmer, wetter, and



lusher environment was established.

Many of the animals living during this period suffered and were unable to adapt to the rapidly changing environment. Gradually, most of the larger animals, and even some very small ones, became extinct. Their disappearance played an important role in the evolution of Paleo and Archaic cultures.

Archaeologists frequently cite the extinction of the large Pleistocene animals as a partial explanation for the changes in Indian cultures between the Paleo and Archaic periods. The large animals of the late Pleistocene certainly had some relevance in the day-to-day activities of Indians, and extinctions may have altered basic cultural lifeways. Although it is questionable how many times an Indian would actually hunt a mammoth in his lifetime, it stands to reason that meat from one animal of this size could provide ample food and other resources for many people. Once these animals became extinct, hunting smaller animals was required on a more frequent basis. One hunter could successfully kill a deer with a well-placed spear, or he could trap or snare smaller game with little difficulty. Hunting parties that may have consisted of many Indians during Paleo times required far fewer hunters by Archaic times.

Indians did not notice the extinction of the mastodons and mammoths in a single lifetime. Their disappearance occurred on a gradual basis, and elder members of a settlement probably recalled their youth, when large

herds of certain animals roamed, only to find that later in life these herds were somewhat reduced. Reductions in animal numbers occurred over many generations before actual extinction took place. Scientists claim the extinctions of large animals were sudden, but in terms of actual time, they occurred over many hundreds of years.

Most archaeologists agree that the disappearance of the large Pleistocene mammals was complete by 10,000 years ago. New evidence suggests, however, that many of these animals may have lingered several thousand years longer, well into the Archaic period. If this were the case, the transition of Paleo to Archaic cultures was probably more gradual than generally thought.

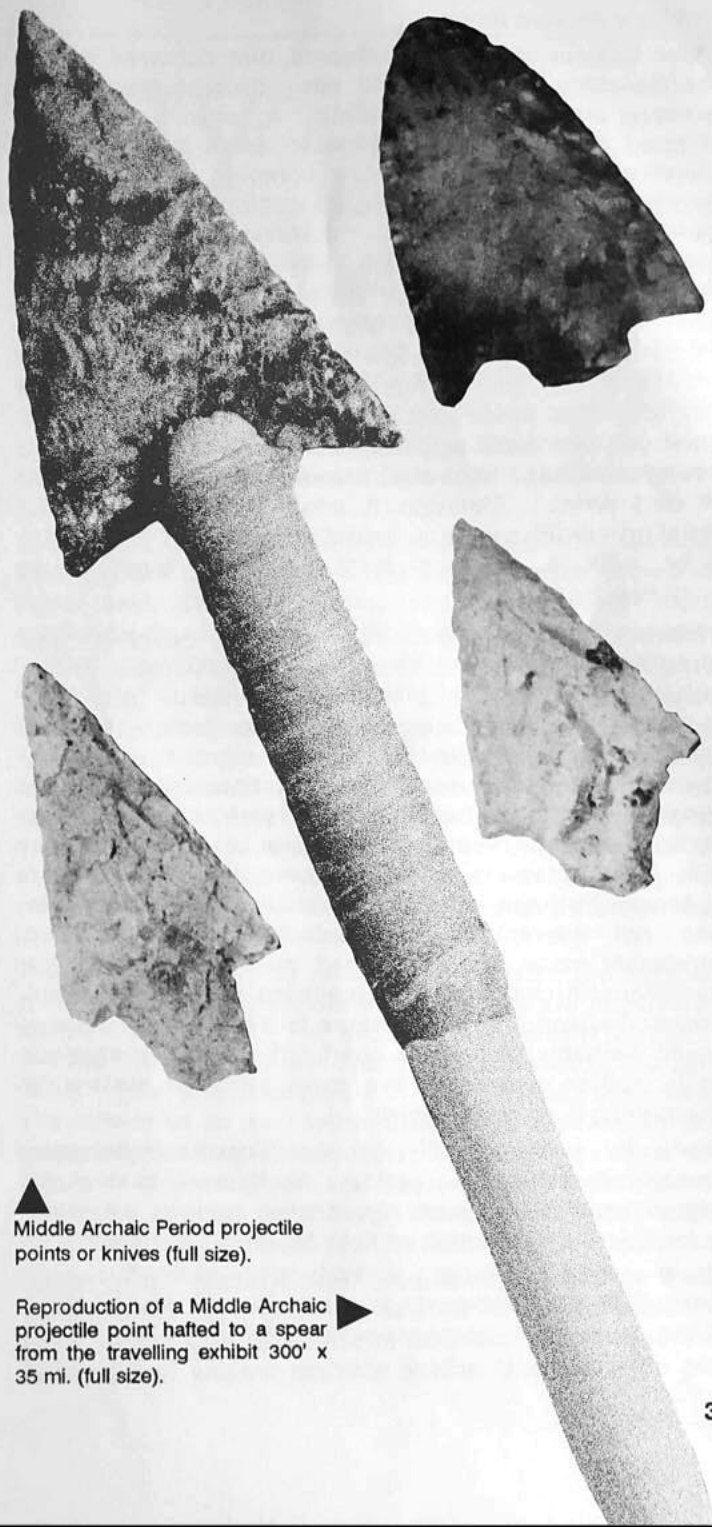
Archaic Indian cultures were far less nomadic than their Paleo Indian ancestors. First, bands of hunters, traveling far from settlements in search of big game, gradually found fewer and fewer large animals. Secondly, Indian populations in Florida and in North America were increasing rapidly. Hunting territories were probably established with these increased populations. In other words, a hunter could travel only prescribed distances in his search for food before infringing on other Indians' hunting territories. Hunting beyond these boundaries would lead to unwanted conflict among neighboring Indian settlements. These boundaries, established due to increased population, were undoubtedly responsible, in part, for increased sedentism in Archaic Indian cultures.

Hunting played an important role in the decreased mobility of Archaic Indians. Smaller animals that were hunted did not have the broad ranges that the large extinct forms required, and therefore Archaic Indians traveled only short distances from their settlement in search of food.

The more sedentary life of Archaic Indians is a major feature in the evolution of early Indian cultures. It promoted cultural development that continued during Archaic times. By Middle Archaic times, milling and grinding stones came into frequent use in most areas of the eastern United States. These tools were not common in Florida because the metamorphic rocks used to make them are not found in Florida. Archaic Indians in Florida probably possessed this technology but used wood as a replacement for stone. Use of milling and grinding tools, regardless of their construction, implies that plant foods were playing greater roles in the Indian diet.

In artifact assemblages found outside of Florida, polished and ground stones have been discovered that date from the middle to late stages of the Archaic period. These stones were, in addition to their other functions, woodworking tools. They reflect the sedentary Archaic life in their elaborate manufacture and their presumed use in the construction of substantial dwellings. Again, these polished stones were formed primarily from metamorphic rock, and if used in Florida, they would have arrived as a result of trading.

A basic change in the design of projectile points and knives also occurred during the transition from Paleo to Archaic times. The long, lanceolate-shaped points designed for larger, late Pleistocene mammals were replaced by smaller Archaic period forms. The shape of Archaic points was quite a departure from the long, straight points made by Paleo Indians. Archaic points were squatter in appearance. They were also notched at the base, a technological improvement that may have assisted in hafting the point to a wooden shaft. Some archaeologists believe notching may have even been a late Paleo Indian technique, but regardless of the exact time it was introduced, notching was a transitional tool manufacturing idea. As the Archaic tradition continued, the small "ears" at the base of the point that resulted from notching were trimmed to create a simple stem. These Christmas-tree-shaped points dominate Middle



▲ Middle Archaic Period projectile points or knives (full size).

▶ Reproduction of a Middle Archaic projectile point hafted to a spear from the travelling exhibit 300' x 35 mi. (full size).

and Late Archaic times.

Other technological advancements that occurred during the transition from Paleo to early Archaic times were beveling and serrating of points. A serrated point was chipped along its cutting edge to adapt it for sawing. Beveling was a slightly more complex technique. A beveled point is flaked along its cutting edge in such a manner as to appear mildly spiraled when viewing it down the length of the point. Beveling was a means of sharpening a used point while still preserving its basic length. Since most of these early Indian points started out as hand held knives, beveling also created a surface that would naturally tilt the tool away from material being cut or sawn.

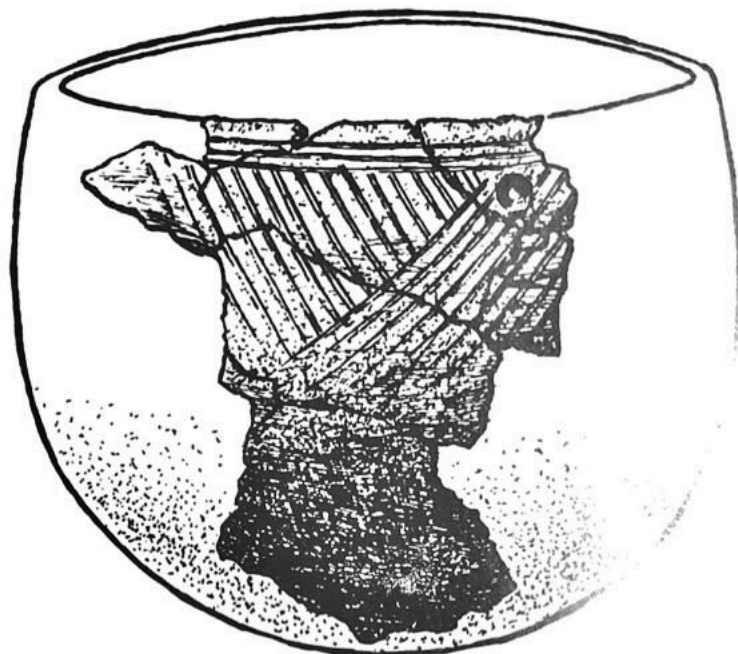
Once a point was resharpened or beveled beyond a manageable hand held size, it was then hafted to a spear or dart shaft. Although it might appear logical that beveling would create a spinning motion of a spear in flight, with a resulting truer trajectory, there is no evidence for this.

Whatever merits existed for notching, beveling, and serrating a point, and they were considerable, these techniques slipped into disuse by Middle and Late Archaic times. In fact, most of the Archaic cultural period is marked by simple stemmed points that lack any of these refined characteristics. Archaeologists are not certain why the craftsmanship in these tools began to decline. Woodworking, for example, a skill consistent with settled lifeways, would have required a wide range of tools. Perhaps, any benefit derived by beveling, etc. was not warranted in manufacturing time, and a carelessly made tool functioned nearly as well as the transitional Archaic points. Realistically, more sedentary Archaic Indians, positioned close to a good chert source, would probably use sharp chert flakes on a continuous basis, rather than make the extra effort of making or sharpening a projectile point.

There is evidence of increased tool sophistication throughout the Archaic period. As it came to a close, approximately 3,200 years ago, Indian cultures advanced to include the production of fiber tempered pottery.

The first fiber tempered pots were typically flat or round bottomed bowls that were rarely decorated. Parallel lines or crosshatching stamped into the wet clay before firing was often the only artistic element Indians incorporated

in their productions. Pottery from this time period fits into what archaeologists term the Orange culture, marking the real beginnings of pottery making. While pottery cultures have been the subject of most all of the early archaeological work in this country, the significance of this report is the foundation that Paleo and Archaic Indians established for these more recent peoples.



▲
Fiber-tempered pottery vessel.

Methodology

Earlier, discussion centered around factors Indians considered when they looked for settlement locations. Archaeologists, knowing these considerations, conduct surveys for Indian settlements that are surprisingly accurate. The original surveying done in preparation for digging is critical because all the labor and study that follows depends on how well the site was originally chosen. Once the site is chosen and digging begins, the success of the excavation depends on the accuracy of field methods used.

In the past, archaeological field methods gave little attention to the context of Indian remains in the soil. Archaeologists felt that an artifact, in and of itself, supplied ample information about a culture. Now, thinking has changed, and archaeologists consider what information the soil context may offer. In other words, one single artifact by itself may tell archaeologists very little, but found in conjunction with other artifacts and at given depths of soil, it may provide a very complete story. Also, before artifacts are removed from the soil, aerial photographs of a site are studied, contour maps are drawn, and many measurements are taken to describe the site physically.

Probably the first important task performed before excavation can begin is laying out a grid system. A grid insures accurate mapping of artifacts within an archaeological site, such that all artifacts have a specific location within the excavation area. It establishes boundaries for digging to insure that all work falls inside a measured perimeter. Small dig sites may require only the use of a compass, tape measure, and a hand level, however excavations that are extensive will certainly require more accurate surveying equipment.

Two methods are commonly used to lay out a grid system and establish site boundaries. Both involve establishing a zero reference point, or more simply, a starting point. The first of these methods, and probably the one in use over the longest time, places the zero

point near the center of the excavation. Using this system, the zero acts as the center of a rectangular coordinate system and the site is broken down into four quadrants. It is important when using a four quadrant grid layout to distinguish which of the four quadrants artifacts are taken from. To do this, some archaeologists label the axes north, south, east, and west, while others may use more simple notations of plus/minus and left/right.

This system can often become confusing. The careless field worker may inadvertently reverse plus or minus signs and directionals that will later create many problems in analysis. Because of this potential confusion, archaeologists are becoming more and more disenchanted with the coordinate-type grid system.

The second method used to layout a grid system helps to eliminate this confusion and it establishes a zero point far enough from the actual site so that the entire excavation will fall into only one quadrant. Therefore, all artifacts recovered are identified by only one set of directionals, a north and east designation. With only one set of variables available to the field worker, there is less room for error in recording.

The grid is laid out in meters and artifacts are mapped according to how far, north and east, they are discovered from the zero point. For example, the point N100/E50 is located 100 meters north and 50 meters east of the zero point. This point, located on a grid sheet, designates one corner of an excavation area. The supervising site archaeologist may decide that this point represents the SW corner of a square, and if so, this southwest corner must be used consistently throughout the entire excavation. Digging at Harney Flats involved pits that were only one meter square. However, since nearly 9,700 square feet of soil was excavated, many of these small pits were ultimately connected to become much larger pits.





In a discussion of tools used for digging, one archaeologist remarked that "the aim of archaeology is to remove soil with the greatest possible ease". This is certainly true and many tired field workers would agree that the right tool for given soil conditions is a must. The tools archaeologists choose for their work are frequently dependent on the soil being dug, but they are also determined by what is most comfortable for the worker. During the excavations in Hillsborough County, the most common tools employed were square-point shovels and hand trowels. Shovels were especially good for maintaining a level work surface and for keeping edges straight and neat. While shovels were important for the removal of most of the soil, trowels exposed artifact features as each new cultural level was exposed.

Digging can be accomplished in two ways, vertically or horizontally. Each of these methods has advantages and disadvantages. Digging horizontally, the method used on all the Hillsborough sites, allows the archaeologist to see features clearly as digging progresses. For example, this method can clearly show the round features of a post hole. The disadvantage in this method is not knowing when to expect changes in soil and cultural levels as digging progresses. In contrast, vertical digging shows layering, or stratigraphy very plainly, but features normally seen easily from above are often missed. Drawbacks to each of these methods can frequently be avoided by digging small control plots that can assist in observing both the layering effect of vertical digging and the basic "floor plan" concept of horizontal digging.

By Florida archaeological standards, the pits that were dug in Hillsborough County were deep, extending five feet into the soil in many cases. Most cultural materials in Florida are recovered after only limited digging, but



Hand tools used by archaeologists.



Archaeologists surveying in site grid.



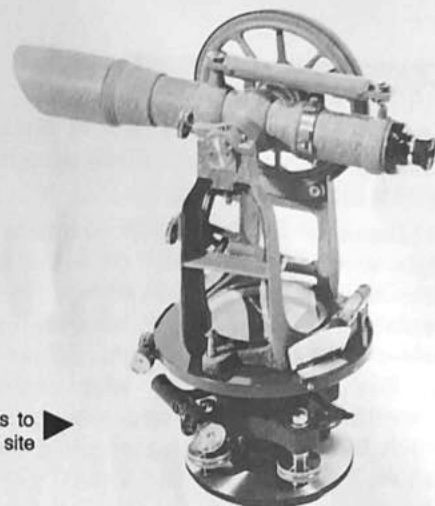
the Tampa Bay region sites were generally covered with extensive topsoil. Digging continued in these areas until no artifacts were found, or when a sterile soil level was reached.

Archaeological excavations progress systematically and carefully. Sides of pits are kept truly vertical and corners are squared-off neatly and precisely. It may seem unnecessary to be concerned about these minute details, but they promote accurate recordkeeping and help to prevent the loss of tools and artifacts as digging continues. The excavations that took place in Hillsborough County were accomplished by teams of two workers in each small pit. This system had a two-fold effect: workers act as a check against one another in using proper field methods and labor is divided equally. For instance, one worker might dig, while a second may bag artifacts, record data, or simply supervise the digging, but both check against one another to insure that each step is carefully executed.

Whenever possible, water is kept handy at the pit being excavated because as each new layer is uncovered, a fine mist of water sprayed over the pit will help outline or clarify exposed features. This is a technique that facilitates photographing each new level as it is exposed, recording differences in soil color, and documenting artifacts that appear in the soil at various levels.

Discovered artifacts are bagged or boxed. Sometimes they are too small to be recovered while the excavation is in progress; to recover these, a one quarter inch mesh screen is used to sift the soil. As artifacts are bagged at each level, they are marked according to which layer and pit they came from so that later analysis will consider materials in their proper site context.

Once removed from the excavation, artifacts are taken to laboratories where they are cleaned or even reconstructed, as in the case of pottery. Cleaning must be done with care since too much cleaning may destroy important features exhibited by an artifact. For example, flint or chert will often take on a weathered appearance, a chemical action called patination, that can be easily removed by over-cleaning. The patination of a stone point is important to archaeologists because it will often



Transit used by archaeologists to survey site grids and produce site maps.

Indicate whether the tool has been reworked or if it has been exposed to natural elements for a given period of time. The risk of destroying important features like this indicates that too little cleaning initially is better than too much.

Beyond simple observation, there are some very specialized tests that take place in the laboratory to help date artifacts and to give other information. The following are brief explanations of a few of these tests.

Phosphate Analysis

Although preservation of organic materials is particularly poor in Florida due to high soil acidity, phosphate testing can often detect organic refuse left by early Indian cultures. These tests can indicate the most densely inhabited part of a site without excavating an entire area.

Patination Studies

Over a period of years, chert becomes weathered from exposure to the elements, a process called patination. Archaeologists have tried to date chert and chert tools by measuring the extent of patination, since the older the artifact, the more patina it will possess. Because environmental conditions vary greatly over the continent, patination rates differ and therefore patination studies are not comparable from site to site, beyond providing general indications of age.

Thermoluminescence

Indians learned long ago that heating chert changed its flaking characteristics. Heating actually made it easier to make tools.

Because of its crystalline composition, chert produces light when it is heated. With the passing of time, chert will absorb and store energy in the form of natural radiation. When it is heated, this stored energy is released in the form of light. When Indians heated chert, all this stored energy was depleted. Eventually they discarded their tools, and energy storage began all over. Much later, when archaeologists discover the stone and reheat it for testing, the intensity of the light it gives off can be measured. This light is proportional to the amount of energy the chert stored over those years of disuse, allowing scientists to date the stone fairly accurately.

Dating stone artifacts by thermoluminescence in some Hillsborough sites helped determine the ages of the sites and gave support to the chronology that had been established. This corroboration is very important in Florida, where organic remains suitable for radiocarbon dating rarely exist.

Use Wear Analysis

Archaeologists have for some time been concerned with correlating the shape of an Indian tool with its function or use. Some archaeologists think there is a strong correlation between shape and function, while others disagree. Use wear analysis performed on tools found in Hillsborough County sites had mixed success. In general, use wear analysis attempts to detect minute scratches or polishing that resulted from the actual use of a tool in its lifetime. Results of these studies were limited to suggesting which tools might have been used for general activities like sawing, cutting, and carving or other motions like whittling or planing. More specific conclusions were not available from this analysis. Considering that there is such diversity of opinion regarding use wear, these studies might indicate that there were just as many variations for the use of a tool when it was first made as there are current opinions on usage.



▲ Archaeologist using binocular microscope to examine stone tools for use wear.

Flotation

Flotation studies involve the use of water or chemical solutions to separate plant remains and bone from soil. Small samples recovered from a site can be tested by the flotation process to insure that small pieces of suspected organic material, missed by the mesh screen, are detected. Tiny particles of plant remains, seeds, and bone float in a zinc chloride solution, whereas rocks will sink. Flotation is an important method used to recover data and help recreate life patterns of early Indians, by showing not just the tools they used but also the foods they ate.

Accessioning

Accessioning also occurs in the laboratory. Each significant artifact discovered is given a number that will identify exactly where it came from in the excavation area. Though this may seem to be a simple exercise, it is a very important one. Workers in the laboratory must guard against carelessness that may stem from repeating small tasks. In the end, the success of work done in the

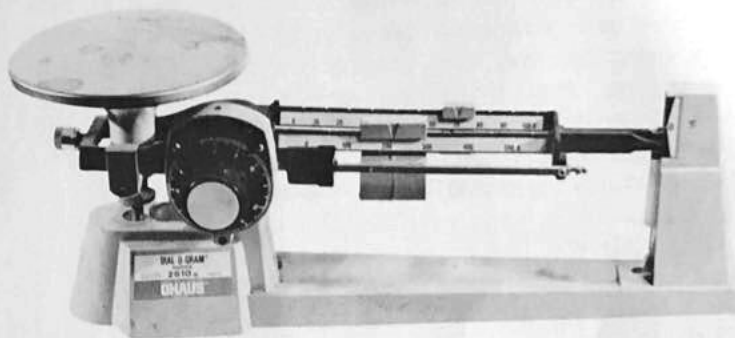
field will be reflected by the care artifacts receive in laboratory settings.

Some problems arise in the field that cannot be guarded against. For example, work at Harney Flats was interrupted periodically by excessive rainfall that flooded excavation units and delayed digging. Trenching along the perimeter of the digging area helped to divert water, however this did not compensate for heavy rains. Plastic coverings that protected each pit during these storms still caved-in, flooding the dig areas and slowing work progress.

Another problem that occurred at Harney Flats that could not be protected against was vandalism. Although the site was secured to prevent theft, lapses occurred that left the site unguarded. Since Harney Flats was such a good example of a Paleo Indian occupation, the notoriety this site received locally was undoubtedly a temptation too strong for nearby "pot hunters". Vandalism took place on two occasions, both instances involving some destruction of pit walls and theft. This obviously hindered the work being done at the time, but more importantly, it had an effect on the final results.

In general, work at each of the thirteen sites progressed smoothly. Obviously archaeologists, like other scientists who are not working in a laboratory setting, must accept set-backs that result from natural causes. Excavations are heavily influenced by natural events. Tree roots and

animal burrows, for example, may alter the vertical position artifacts assume over a period of years. When archaeologists encounter these situations, they must allow their thinking to be flexible. Finding an artifact in an unusual position in the soil might indicate a different cultural level or it may have been pushed there by a root system long ago decayed or by a burrowing animal. At times like these, archaeologists are called upon to use their scientific training, intuition, and common sense.



▲ Scales used to weigh artifacts.



◀ Computers are used to store and analyze data from excavation projects.



Findings and Results

The information in this report was compiled from in-depth reports on thirteen archaeological sites in Hillsborough County (see Bibliography). The reports addressed individual sites and each differed in scope. Some of the findings were similar, but the overall character of each site was unique.

Of these thirteen sites, two were most helpful in broadening our understanding of Paleo and Archaic Indian life. Diamond Dairy, an Archaic site, and Harney Flats, an important Paleo Indian site, were both subjects of Phase Three investigations. The reports on these two sites will be discussed here.

The Diamond Dairy site has been identified as a Middle Archaic period occupation. The actual placement of this site on a time line was determined by comparing the artifacts found to artifacts that hold fixed positions in established chronologies. Based on the artifacts left behind from the Diamond Dairy occupation, this site appears to have been occupied from about 7,000 to 5,000 years ago.

Due to high soil acidity, information gathered from sites in Florida is often obtained mainly from stone tools and the debris left from the manufacture of stone tools. At Diamond Dairy, only chert remains exist to explain what happened at the site. Some of the skills used to define this site and to analyze the artifacts are new and highly specialized. The information gathered through analysis was useful, not only for increasing our knowledge of the prehistory of Hillsborough County, but for other archaeologists when they encounter similar sites lacking preserved organic material.

Archaeologists have recovered information from Archaic sites that indicates several different kinds of sites existed during the Archaic period. It is important to

discuss these site types before defining Diamond Dairy. One type of site is a large base camp that includes all the basic activities of a settled occupation area. A base camp would show remains of activities like woodworking or construction, tool retouching and resharpening, and possibly food processing. Base camps are often referred to as maintenance sites because most of the activities that are involved in a daily routine are found here. For example, Indians often retouched or reworked used tools at base camps, maintenance that helped to preserve their tools.

A second type of site is called an extractive site, because at these camps, Indians extracted and may have processed resources. In other words, some camps may have been used for hunting, where animals were killed, and where the meat was processed and dried. Others, like the Fletcher Avenue site, were small lithic workshops where flint or chert was collected in manageable sizes and quantities, worked (or knapped) slightly, and then taken to a base camp to be refined as a finished tool.

Many sites appear complex when they are first excavated, and it is often difficult to determine how each one functioned. For example, the Fletcher Avenue site was a lithic workshop at one time, while at another time it may have been a place of residence. It is important to recognize the differences in the use of a site that have occurred over time so that a blurred picture isn't created later in analysis. Without careful attention to details, the Diamond Dairy site could have produced a very confused picture of Indian life in Hillsborough County. Here, as in a majority of the Hillsborough sites excavated, less than one percent of the entire site was actually uncovered. At best, archaeological studies are likely to miss some important features when excavations are limited, and therefore Diamond Dairy demanded and received careful attention.

There are two possible roles Diamond Dairy may have played; it may have been either a small base camp or a

Artifacts are permanently stored so they will be available for future archaeologists to study.

hunting camp. It is difficult to distinguish between these two possibilities given the artifacts recovered and their distribution at the site.

One characteristic of base camps discussed earlier is their close proximity to lithic supplies. Although chert outcroppings were not available at Diamond Dairy itself, chert was available along Six Mile creek, which bordered the site. With chert relatively close at hand, unrefined flakes of stone could be knapped quickly and tossed aside after brief use. Waste flakes of this type were very common at Diamond Dairy; analysis showed that they were the predominant type of tool at the site.

Another feature of base camps is proximity to several environmental zones and the Diamond Dairy site is well endowed in this regard. The Diamond Dairy site lies along a noticeable ridge, part of the Polk Uplands, that separates Harney Flats from Six Mile Creek, and is sandwiched between the Gulf Coastal Lowlands and the Polk Uplands.

The position of Diamond Dairy made it an ideal site for settlement. As drier conditions were alleviated by more rainfall during the Middle Archaic, Six Mile Creek would have provided ample water. The elevated position of the site along the Uplands not only served as an excellent observation post, but the site's southeast exposure would have provided maximum sunlight throughout the year. From this position along the side of the ridge, Indians could readily explore the pine and oak forests atop the ridge for deer and nuts. Moving down off the ridge, they were likely to tap the food resources of a lake, which is suspected to have existed below. From these various environments close at hand, the meat, nuts and fruits, shellfish and whatever fish could be caught, could have provided a diverse diet.

It seems likely that Diamond Dairy was a "small" base camp. Here, few finished tools appear and flakes dominate the assemblage of artifacts. However, the total collection of excavated artifacts was not significant enough to call the site a large base camp.

Other evidence from Diamond Dairy suggests that it may have served as an extractive site, or more specifically, a hunting camp. Three separate areas were excavated at Diamond Dairy, and each gave indications of some aspect of food processing. The first area yielded scrapers and knives that may have been used in the

butchering of animals. If a source of lithic materials was close by, as has been suggested, a quickly worked piece of chert could be used to scrape an animal skin, and later tossed aside as other sharper flakes were knapped. It is not difficult to see how such a camp could exist given these conditions.

Artifacts from the second area indicate that this part of Diamond Dairy might have been a tool production area. Activity of this sort would certainly be important in a hunting camp, insuring that tools were always available to process animals. Comparatively few projectile points were found at Diamond Dairy, evidence that this part of the camp was used only for tool manufacturing. The points found were incomplete or broken, suggesting that they had been thrown away and replaced by new tools or that they were awaiting repair or retouching.

The third and final area of excavation was distinguished by one very nice archaeological feature — a stack of eight stone blanks, all except one unused. A blank can be thought of as a tool in the making. It is not clear from its shape just what type of tool it will become, but it is obvious that a defined tool is the ultimate objective. Blanks were often tooled at the quarry site and then finished elsewhere.

Of the eight blanks, one was used as an ax. This is the only large woodworking tool uncovered at Diamond Dairy. This lack of large tools is important in itself. It tells archaeologists that this site was probably small and of short duration. The sturdier the dwellings Indians constructed and the longer they stayed in an area, the larger and more diverse their tool kit is expected to be. The fact that virtually no construction tools were found and that the collection of tools was not very diverse says that this site was limited, both in time and use.

Artifacts from Diamond Dairy suggest that the site was either a small base camp or an extractive hunting camp. While evidence for each of these types of sites has been mentioned, it is important to keep in mind the limited information archaeologists used to draw these conclusions. Pictures of Indian life that are constructed solely on lithic remains are tenuous ones at best. Even though archaeologists recognize that base camps are one type of Indian occupation and that extractive camps are another, it is possible that a site like Diamond Dairy functioned as both. Perhaps Diamond Dairy was a small



▲
Cache of eight chert blanks at the Diamond Dairy site.

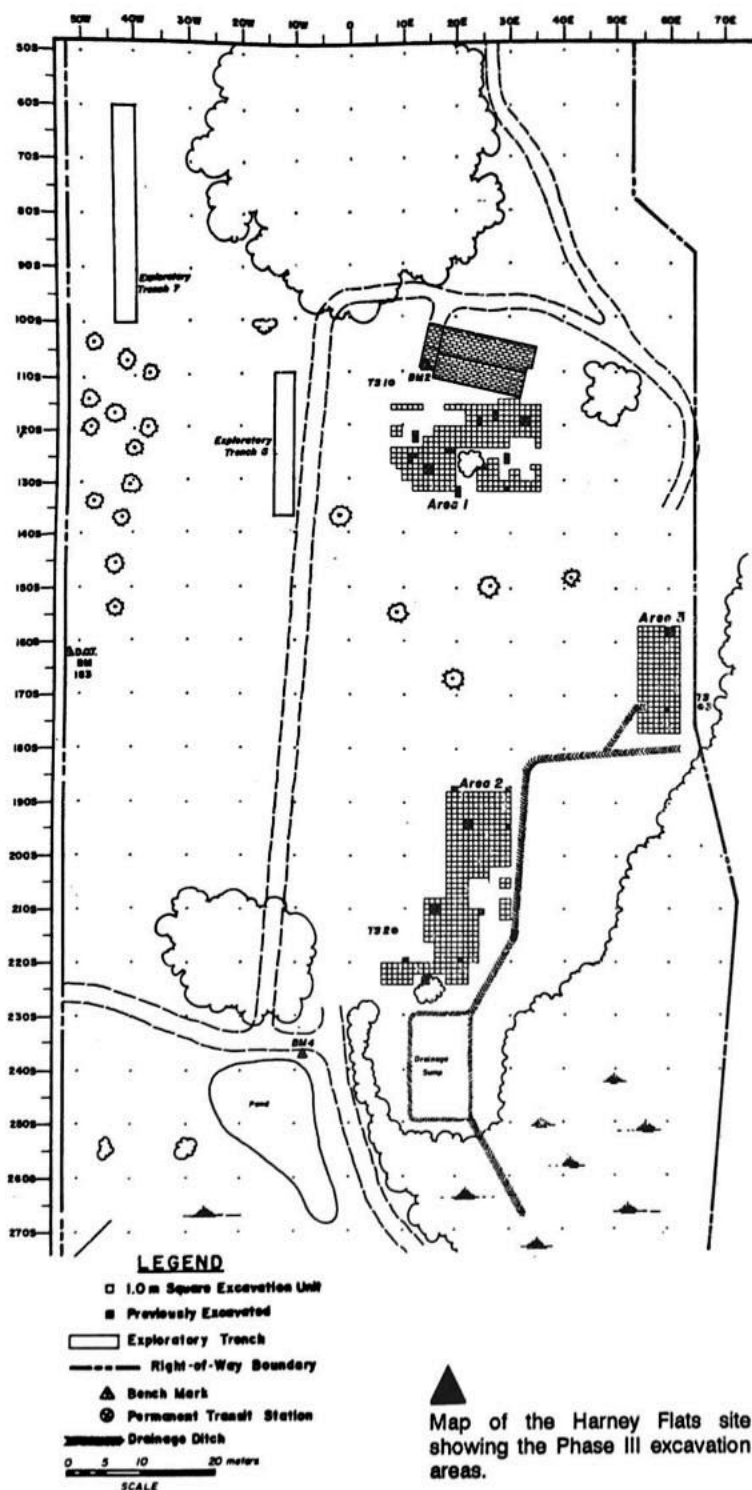
Map of the Harney Flats area showing the Interstate corridor and the Harney Flats Site. ►



base camp, and at this location all the important functions of daily Indian life were carried out. The only work areas uncovered were food processing, tool production, and storage; however, many other work areas may have been represented in the unexcavated portions of the site. The very small proportion of the site actually excavated at Diamond Dairy offers good clues for Indian activity here, but it may not present the entire picture.

Several thousands of years away in time, but only about ten miles north along the Interstate corridor is Harney Flats. Situated within the upper elevations of the Gulf Coastal Lowlands, just below the Polk Upland, the 10-12,000 year old Harney Flats site is one of the finest Paleo Indian sites yet uncovered in the southeast.

Harney Flats seems to have been an ideal location. The site bridges three important physiographic features: the



Polk Upland, the Zephyrhills Gap, and the Gulf Coastal Lowlands. The Polk Upland, for example, offered a high, dry settlement that required only minimal travel to tap nearby food and chert resources. The Gulf Coastal Lowlands also offered the prospect of food, since water that collected in low lying areas attracted animals that Indians hunted on a regular basis. The location of Harney Flats along the hills just adjacent to the Zephyrhills Gap provided an observation point. Here, a separation in a ridge connecting the Hillsborough River and the Palm River Valley may have been a natural passage for animals moving from upland areas to watering spots below. The Harney Flats site, positioned along a scarp overlooking the Harney Flats basin, allowed Indians to observe the movement of animals from above, offering the prospects for finding food on a predictable basis.

Harney Flats was a large base camp that functioned as a place of residence for Paleo Indians, as a work area where tools were manufactured, and quite possibly as a social center for gathering Indian bands. This picture is constructed from the artifacts found at the site and by their positions in the site. The Harney Flats site was divided into three areas of excavation, just as Diamond Dalry was, and each of these areas offered evidence of the type of activity performed there.

Area One was located on the highest and flattest portion of the site, and served as a natural living area. It offered a good vantage point and it was obviously drier than the two lower portions of the site. Area One also contained fewer artifacts and less lithic waste, or debitage, an indication that this part of the site was used as a living space. Indians probably avoided cluttering their living area with flakes of stone resulting from their tool-making.

In Area One, two artifacts were discovered that strongly suggested that Harney Flats may have functioned as a gathering place for neighboring bands of Paleo Indians. One artifact had an unknown function while the second was used as an anvil; both were made of metamorphic rock, found naturally 500 miles north of the Tampa Bay region in northern Georgia. Since it is unlikely the Indians at Harney Flats would have traveled this far for lithic materials, it is reasonable to suspect that it was exchanged or bartered during social gatherings.

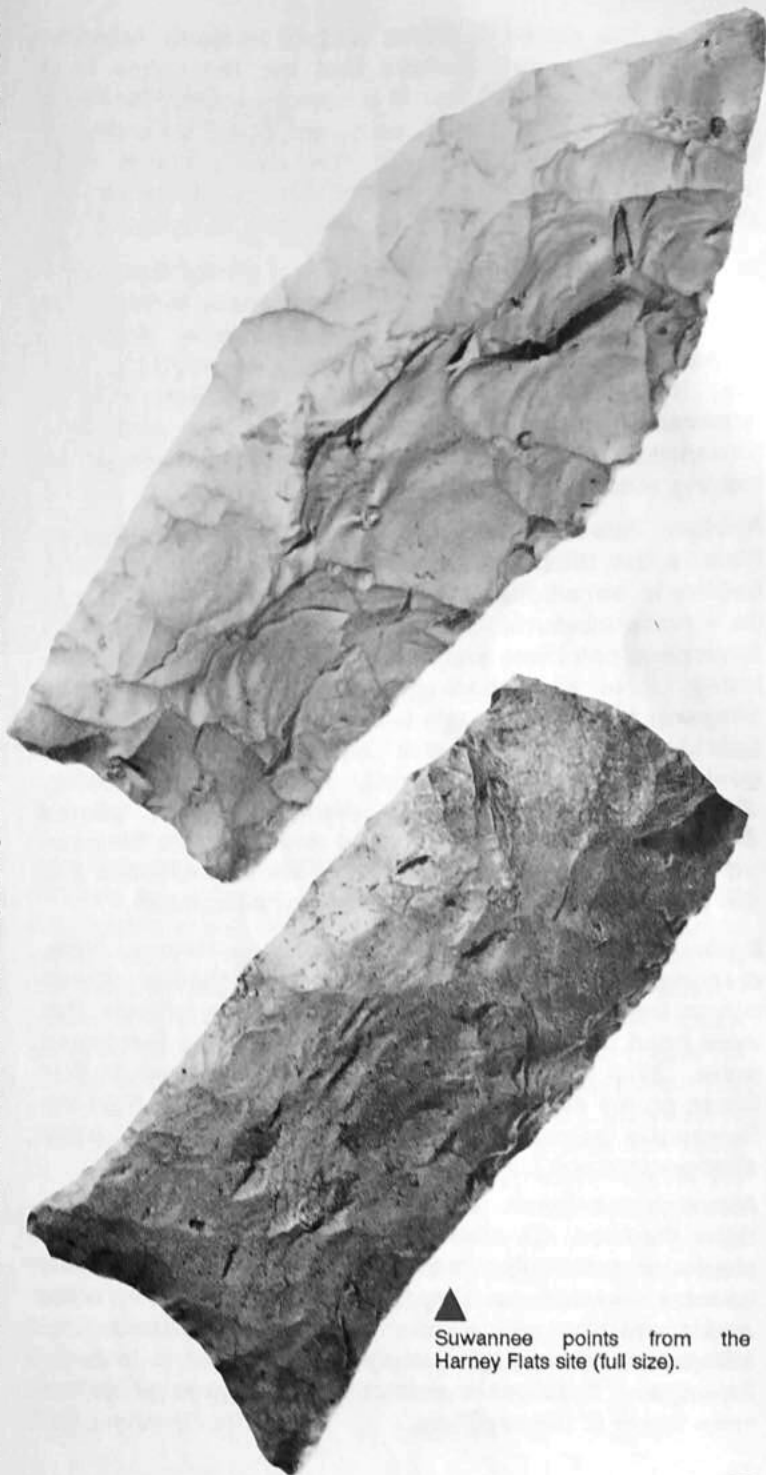
Neighboring Indian groups may have banded together at favorable locations, like Harney Flats, to exploit the many resources there. They were also likely to carry on a variety of social activities that included trading. Interestingly enough, the metamorphic rocks found here were probably not as effective, in terms of quality, as the same tools made of the chert Indians had available in the immediate area. Because of this difference in quality, archaeologists are perplexed by the presence of these exotic stones, however the importance given the unusual nature of the stone may have overridden their actual usefulness.

The other two areas excavated at Harney Flats are thought to have been used for tool-making. Whereas the Diamond Dairly assemblage was dominated by flakes with few shaped tools, Harney Flats produced both thousands of quickly made flake tools and many shaped tools. Because the supply of chert was so plentiful near Harney Flats, many of the shaped tools were brought here to be thrown away. Rather than spend time sharpening an old tool, it was easier to throw it away and quickly knock off a sharp flake from a large chert core. Cores of rock were brought right from quarry areas and small sharp flakes could be knapped from them to be used and thrown away once they became dull. Studies have shown that when chert was available to Indians in large quantities, like at Harney Flats, they conserved their hafted tools, those shaped and bound with wooden handles or shafts, and used quickly made flake tools more often.

Although flake tools dominated the assemblage at Harney Flats, Suwannee projectile points were definitely the most exciting discoveries. The Suwannee point is the oldest point type in Florida and has been found in Paleo Indian artifact collections throughout the Southeast. Because of its limited regional distribution and because it forms the beginning of the Florida point chronology, the Suwannee point is of special interest to archaeologists.

The Suwannee point is a rather large, lanceolate shaped point, which tapers slightly at its base. At the base, small ears were created, most likely to assist in hafting the tool. In its finished form, the Suwannee was probably used as a heavy cutting tool.

The Suwannee is similar in shape to the Clovis point,



▲
Suwannee points from the
Harney Flats site (full size).

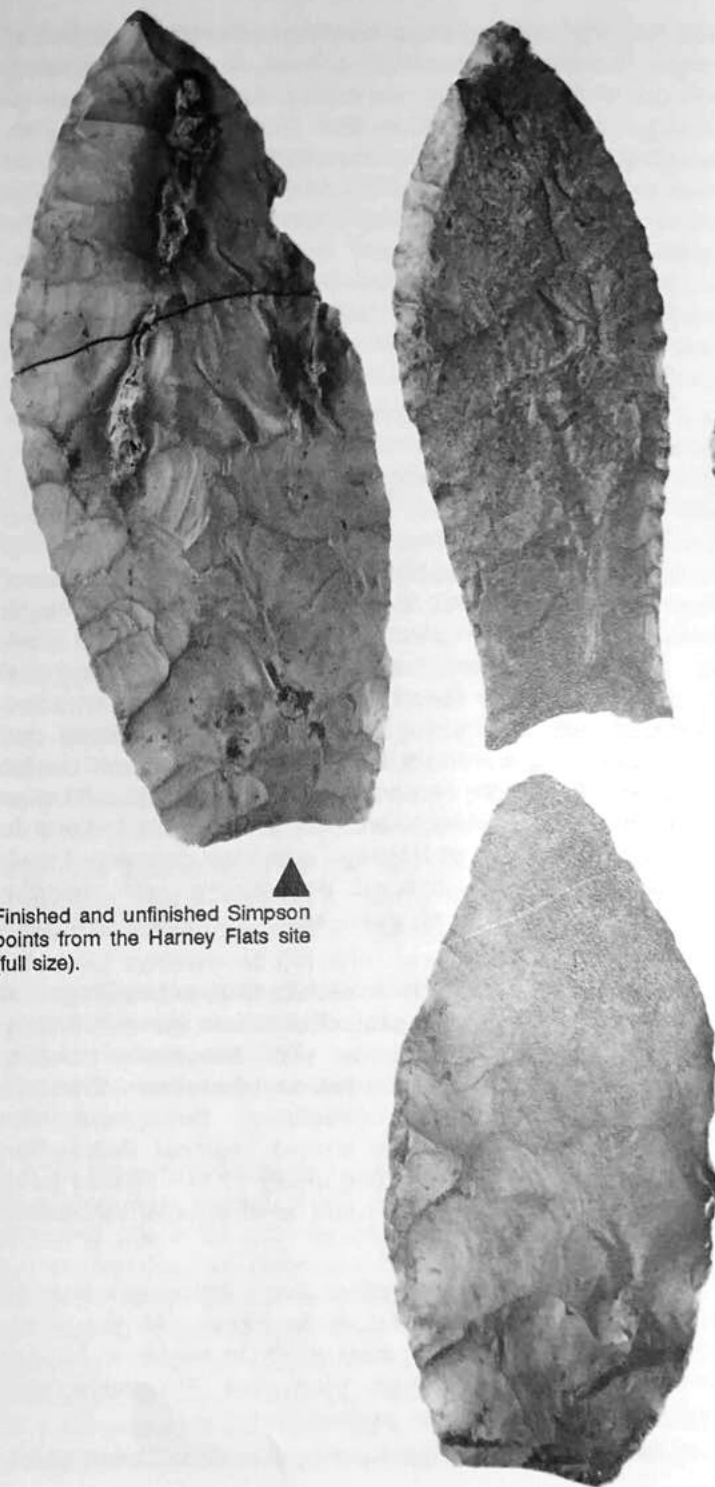
which is the dominant Paleo artifact in North America. Some archaeologists believe that the Suwannee is a reshaped Clovis point, but if a transition from Clovis to Suwannee actually existed, each type could be expected from excavations. Currently, few Clovis points have been found in Florida, suggesting that the Clovis and the Suwannee are two distinct Paleo Indian tool types.

At Harney Flats, several complete and partial Suwannee points were discovered. Compared to many of the other artifacts found, Suwannee points were scarce. However, because Harney Flats was a living site, as well as a work site, the various stages of tool manufacture were represented by different artifacts. While few completed Suwannee points were recovered, the sequence of its making was clearly shown.

Another Paleo Indian projectile point found at Harney Flats is the Simpson Point. Those archaeologists who believe in transitional styles think the Simpson point may be a remanufactured Suwannee point. For example, if a Suwannee point was snapped off at its base in manufacturing or in resharpening, it is very possible that a Simpson point could have been salvaged. The Simpson point is quite similar to the Suwannee except that it is generally smaller and slightly more bulbous-looking, differences that could have resulted from a tailored Suwannee point. Several partial and complete Simpson points were found at Harney Flats, further indication that the site was an important Paleo Indian occupation.

Bolen points were also recovered at Harney Flats, creating both excitement and some consternation. These points are recognized as late Paleo Indian artifacts that were used some two thousand years after the Suwannee point. With this in mind, archaeologists hoped to find Bolen points at a different and higher soil level than the Suwannee points; however, both occupied the same stratigraphic soil layer.

Although two types of Bolen points, Bolen Plain and Bolen Beveled, are distinguished, they each represent a single manufacturing sequence. Bolen Plain points become beveled as they are resharpened. In other words, the only way a point can be made sharper and still preserve the original length of the point is to bevel its edges. Excellent examples of both types of Bolens were found at Harney Flats.



Finished and unfinished Simpson points from the Harney Flats site (full size).

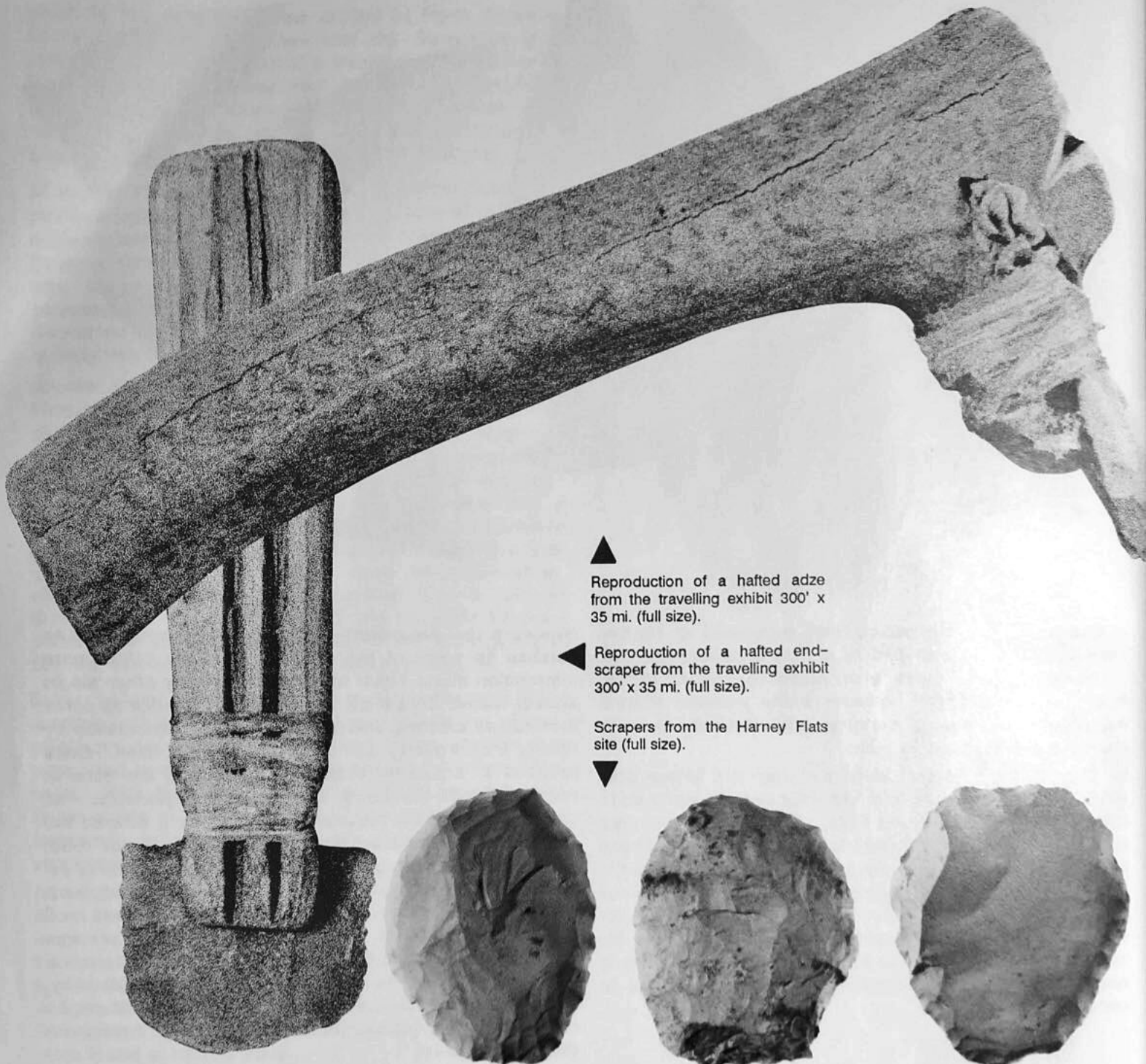


Early Archaic Bolen points from the Harney Flats site (full size).

A total of 134 end scrapers was recovered at Harney Flats, many of them shaped to accept a wooden handle. These tools would have been used to scrape animal hides, wood, or bone, however some variable shapes suggested that cutting, carving, and spokeshave work could have been done as well.

In contrast to the later Diamond Dairy site where only one heavy woodworking tool was discovered, many such tools were found at Harney Flats. Among these were six adzes, including two that were tapered for hafting. These heavy tools, once held securely by a wooden handle, were used for chopping wood. The number of tools recovered at Harney Flats that could be used for woodworking indicates that this site served Indians for long periods of time. The longer residence time would have required sturdier dwellings that adzes helped to construct.

One core tool recovered at Harney Flats, though not as finished as some of the artifacts, probably offers more information about Paleo Indian life than any other single artifact found. This thick, oval-shaped tool, like all cores the Indians created, was given its rough dimensions by flaking it at a quarry site or at Harney Flats itself. Once reduced to a size of about seven inches, the core fit comfortably in the hand, and it became portable. Its value depended on the many possibilities it offered the Indians as they moved about in their search for food. For example, a core could be flaked to create simple, yet sharp, flake tools in an area where chert may not have been available. The core could also fit the hand well enough to be used as a hand ax. Finally, if the core was flaked properly, it could have become a Suwannee point. Archaeologists regard the core tool as one with flexibility, because it could be adapted to many situations confronting the Indians in their movement throughout their environment.



▲
 Reproduction of a hafted adze
 from the travelling exhibit 300' x
 35 mi. (full size).

◀
 Reproduction of a hafted end-
 scraper from the travelling exhibit
 300' x 35 mi. (full size).

▼
 Scrapers from the Harney Flats
 site (full size).



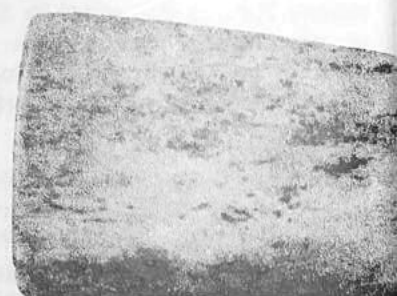
▲
Adzes from the Diamond Dairy
site (full size).

The core tool is an excellent example of the flexibility of the Paleo Indian tool kit, and nearly all the artifacts recovered at Harney Flats exhibit this trait. The Harney Flats tool kit was not a specialized set of tools; it was a set of tools, typified by the core, that could be adapted to meet many demands in the course of the Indians' movement. The generalized nature of the tools found at Harney Flats is important in the understanding of Indians in the Tampa Bay region and these findings help substantiate what archaeologists already know about Paleo Indians throughout North America.

The geographic shape of Florida and its location probably led to some notable differences in Indian life compared to the rest of North America. Paleo Indians living in the Plains states, for example, were probably highly mobile, since the animals they pursued roamed open spaces and probably followed some sort of migratory pattern. In Florida, however, with its similar winter and summer temperatures, animals were not likely to migrate, but instead moved about only when water or food became exhausted.

Indian movement in Florida, as a result, may have been much different from northern Paleo groups. The constant movement required further north may not have been necessary in Florida. While Indians living in the Tampa Bay region obviously traveled some distances in search of animals, these distances may have been limited. The animals they hunted were not inclined to stray long distances to fulfill their need for food, which in turn limited movement on the part of the Indians. Second, the uniform climate meant that plant foods could be rotated; while one plant food source diminished, another could be relied upon as a replacement. And, finally, in Florida fish and shellfish could also be relied on.

The archaeological research conducted at the sites along the I-75 corridor in Hillsborough County has taught us much about the lifeways of the earliest inhabitants of Florida. We have learned about their technology — what tools they used and how they made them. We have learned about the kinds of settlements they had and what they looked for when they sought a place to settle or work. Of course, there is still much we do not know.

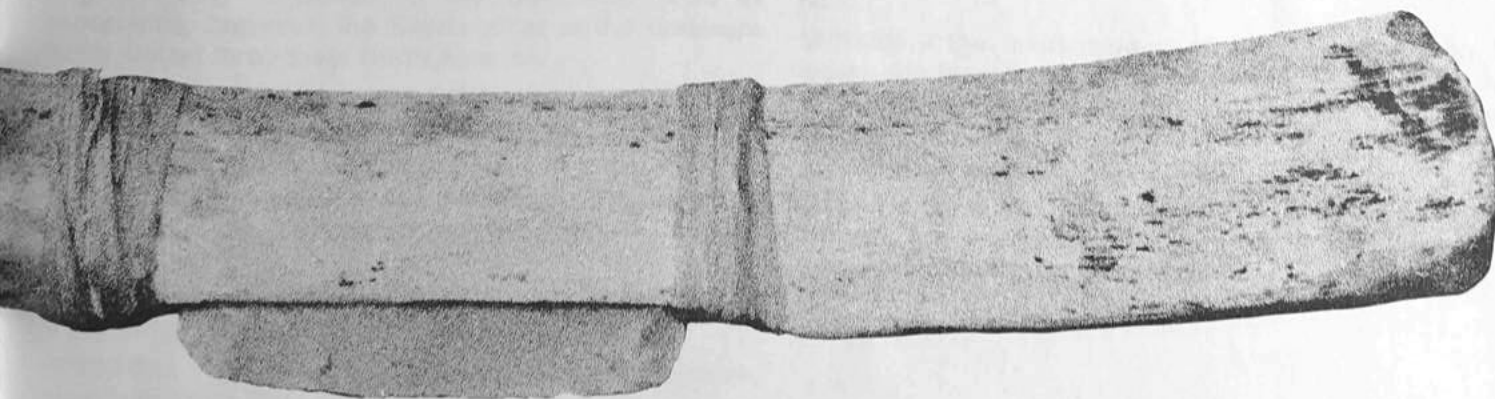


Core tools from the Harney Flats
site (full size).

For example, we really know very little about their diet or their beliefs. Some of these things we may never know but others we may discover in the near future. The only way we will learn, however, is through careful, scientific archaeological research.

The past can tell us much about the present. If we learn how people coped with their environment and their fellow men in the past, perhaps we will be better able to cope with our environment and our fellow men now and in the future. The Hillsborough County excavations have made a contribution to our knowledge of our past and preserved a bit of Florida's heritage. Let us hope we make good use of both.

Reproduction of a hafted side-scraper from the travelling exhibit 300' x 35 mi. (full size).



Glossary

ABORIGINAL - native inhabitants of North America before the arrival of Europeans.

ARCHAIC PERIOD - dates for the beginning and end of this period differ from source to source; however, the period from 9,500 to 3,500 years ago is generally accepted.

ATLATL - a wooden shafted throwing device with a hooked tip, usually made of bone, that assisted in throwing a spear greater distances and with more force.

BASE CAMP - an Indian site used as a permanent residence.

BOLEN POINT - thought to be a transitional projectile point between the late Paleo and early Archaic periods. Projections, or ears, only hinted at in Paleo points became more prominent with the technique of side-notching.

CHERT - a silica rock, resembling flint, that is often found as a small pocket in limestone and which was used by early Indians for tool-making.

CHRONOLOGY - dating archaeological finds relative to each other, even though the age in terms of years is not known precisely.

CLOVIS POINT - similar to the Suwannee point in appearance; however, the Clovis point is the dominant Paleo artifact throughout North America.

FLAKE TOOLS - sharp, expedient tools created from knapping flint or chert.

GRID SYSTEM - a method of establishing a boundary for an excavation such that the positions of all artifacts found within this boundary can be accurately mapped and recorded.

HAFTING - the process of attaching a stone tool to a wood or bone shaft by means of twine or sinew.

KNAPPING - the process of shaping artifacts from stone, usually chert or flint.

LITHIC - relating to, or made of stone.

PALEO PERIOD - the beginning of this period in North America depends on when Indians are first thought to have entered the continent, but in Florida, the period from 12,000 to 9,500 years ago would probably be ample.

PATINATION - a process of weathering due to exposure to the elements, creating a dull finish or film on stone.

PHYSIOGRAPHY - the physical geography of an area based on the appearance of the land surface.

PLEISTOCENE - the last million years of geological history, known as the age of glaciers, from which the earliest skeletal remains of man date.

PROCUREMENT CAMP - a temporary camp used by Indians to gather a resource.

PROJECTILE POINT - a sharp, pointed object flaked from stone and applied to a shaft of bone or wood to be used as a tool.

SALVAGE - a final phase of excavation when a site is studied as intensively as possible.

SIMPSON POINT - quite similar to the Suwannee point in basic appearance, but it is generally smaller and more bulbous, possibly resulting from a tailored Suwannee point.

SURVEY - the measurement of an excavation area to locate site boundaries, or more loosely, it can mean the exploration of a site to determine its age and the cultures that may have been there.

SUWANNEE POINT - the name given to the oldest projectile point type in Florida that is rather large, lance-shaped, and tapered at the base where small ears are present for hafting the point to a wooden or bone shaft.

Bibliography

Almy, Marion M.

- 1981 Archaeological Excavations at the Curiosity Creek Site (8HI480): An Inland, Short-term, Multi-period Aboriginal Occupation In Southern Hillsborough County, Florida. Ms. on file, Florida Bureau of Archaeological Research, Tallahassee.

- 1982 Archaeological Excavations at the Cypress Creek Site (8HI471): An Inland, Short-term, Multi-period Aboriginal Occupation In Northern Hillsborough County, Florida. Interstate 75 Highway Phase II Archaeological Reports 4. Florida Division of Archives, History and Records Management, Tallahassee.

Austin, Robert J.

- 1983 The Cypress Creek Site: Lithic Analysis and Site Function. The Florida Anthropologist 36:124-139.

Chance, Marsha A.

- 1981 Wetherington Island: An Archaic Lithic Procurement Site In Hillsborough County. The Florida Anthropologist 34:109-119.

- 1982 Phase II Investigations at Wetherington Island: A Lithic Procurement Site In Hillsborough County, Florida. Interstate 75 Highway Phase II Archaeological Reports 3. Florida Division of Archives, History and Records Management, Tallahassee.

- 1983 The Diamond Dairy Site: Archaic Intrasite Function and Variability. Ms. on file, Florida Bureau of Archaeological Research, Tallahassee.

Chance, Marsha A., and Elizabeth J. Misner

- 1984 Archaic Lithic Procurement Behavior at Wetherington Island, Hillsborough County, Florida. Ms. on file, Florida Bureau of Archaeological Research, Tallahassee.

Clayton, Danny H.

- 1983 Unusual Marks Found on Giant Land Tortoise

Remains In Hillsborough River. The Florida Anthropologist 36:101-104.

Daniel, Randy

- 1982 Test Excavations at the Deerstand Site (8HI483A) In Hillsborough County, Florida. Interstate 75 Highway Phase II Archaeological Reports 2. Florida Division of Archives, History and Records Management, Tallahassee.

Daniel, Randy, and Michael Wisenbaker

- 1981 Test Excavations at 8HI450D: An Inland Archaic Occupation In Hillsborough County, Florida. Interstate 75 Highway Phase II Archaeological Reports 1. Florida Division of Archives, History and Records Management, Tallahassee.

- 1983 A Preliminary Report on the Excavations at Harney Flats, Hillsborough County. The Florida Anthropologist 36:67-80.

- 1984 Salvage Excavations at Harney Flats: A Paleo Indian Base Camp In Hillsborough County, Florida. Ms. on file, Florida Bureau of Archaeological Research, Tallahassee.

Gagel, Katherine

- 1981 Archaeological Excavations at Site (8HI483B): An Archaic Habitation Site In Hillsborough County, Florida. Interstate 75 Highway Phase II Archaeological Reports 6. Florida Division of Archives, History and Records Management, Tallahassee.

- 1981 Archaeological Excavations at Site 8HI393C: An Archaic and Deptford Habitation Site In Hillsborough County, Florida. Ms. on file, Florida Bureau of Archaeological Research, Tallahassee.

- 1984 Archaeological Excavations at Site 8HI510A, an Early to Middle Archaic Habitation Site, Hillsborough County, Florida. Ms. on file, Florida Bureau of Archaeological Research, Tallahassee.

Gagel, Katherine, and Randy Daniel

- 1985 Archaeological Excavations at the Titus Church Site (8HI521) and the Two Horse Site (8HI522): Two Archaic Sites in Hillsborough County, Florida. Ms. on file, Florida Bureau of Archaeological Research, Tallahassee.

Hardin, Kenneth W.

- 1982 Archaeological Test Excavations at the Landfill Site (8HI99B and 8HI99C), an Archaic Period Site in Hillsborough County, Florida. Ms. on file, Florida Bureau of Archaeological Research, Tallahassee.

Haviser, Jay B., Jr.

- 1981 Phase II Archaeological Test Excavations at 8HI472, Subarea E: An Archaic Occupation in Hillsborough County, Florida. Ms. on file, Florida Bureau of Archaeological Research, Tallahassee.
- 1983 Test Excavations at the Wetherington Ridge Site (8HI472), a Paleo Indian through Transitional Period Base Camp Occupation in Hillsborough County, Florida. Ms. on file, Florida Bureau of Archaeological Research, Tallahassee.

Johnson, Robert E.

- 1985 Archaeological Excavations at the Wetherington Ridge Site (8HI472B) in Hillsborough County, Florida. Ms. on file, Florida Bureau of Archaeological Research, Tallahassee.

Jones, B. Calvin, and Louis D. Tesar

- 1982 An Update on the Highway Salvage Program in Florida. The Florida Anthropologist 35:59-62.

Milanich, Jerald T., and Charles H. Fairbanks

- 1980 Florida Archaeology. Academic Press, New York.

Palmer, Jill, James Dunbar, and Danny H. Clayton

- 1981 Report on Phase II Underwater Archaeological Testing at the Fowler Bridge Mastodon Site (8HI393C/UW), Hillsborough County, Florida. Interstate 75 Highway Phase II Archaeological Reports 5. Florida Division of Archives, History and Records Management, Tallahassee.

Purdy, Barbara A.

- 1981 Florida's Prehistoric Stone Technology. University Presses of Florida, Gainesville.

Wharton, Barry R.

- 1983 Phase II Archaeological Test Excavations at the Diamond Dairy Site (8HI476A and 8HI476B), an Archaic Period Site in Hillsborough County, Florida. Ms. on file, Florida Bureau of Archaeological Research, Tallahassee.



300'×35 Mi.

981 M8 M 5778
09/07/09 164965

Group